MAINE GAP ANALYSIS VERTEBRATE DATA - PART I:

DISTRIBUTION, HABITAT RELATIONS, AND STATUS OF AMPHIBIANS, REPTILES AND MAMMALS IN MAINE

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Introduction

A major component of gap analysis (Scott *et al*. 1993) is the predicted distributions of vertebrates occurring in a state. This is one of two volumes that documents the predicted distributions, habitat relations, and status of terrestrial (i.e.; non-fish, non-marine) vertebrates that regularly bred in Maine during the late 1980s-early 1990s. Regular breeding was defined as known, or likely, to have produced offspring in the state in at least five of the last 10 years (1984-1993). These two volumes detail the data used to define habitat relationships for the 270 native vertebrate species that regularly breed in Maine, and are an integral part of the final contract report for Maine Gap Analysis (ME-GAP) (Krohn *et al.* 1998). This volume, Part I, documents the habitat and status information for 17 species of amphibians, 16 reptiles, and 54 species of mammals. Part II covers the 183 bird species analyzed in ME-GAP.

It is important to note that these data were assembled to conduct statewide and regional analyses of biodiversity in terms of the presence and absence of species. This information was not intended for estimating abundance or the health or condition of populations. Emphasis was placed on synthesizing information on species-habitat relations from studies conducted in (by order of priority) Maine, New England and eastern Canada, the Great Lakes region, and anywhere in North American within the species' range. We believe the studies from Maine and eastern North America to be reasonably complete (with some exceptions; e.g., habitat relations of bats are poorly known and only now being studied), but given the rapidly expanding literature on species-habitat relations, we undoubtedly missed some studies, especially more recent ones.

Information Provided

The information is arranged in two volumes (Part I = amphibians, reptiles, and mammals; Part II = breeding birds), with species arranged in taxonomic order. Information for each species is presented on two pages as follows:

First Page

Common and scientific names: Names are from lists maintained by The Nature Conservancy (TNC) (see *http://www.consci.tnc.org/src/zoodata.htm*).

Element code: A unique letter and number code, adapted from TNC.

ME-GAP code: A four letter code used by ME-GAP; developed before **Element codes**.

Order/ Family: Standard taxonomic groupings that show evolutionary relatedness.

Breeding range change: The overall distribution of a species, known as its range, does change.

Sometimes these changes are slow, in some cases changes can be rapid. Ranges can expand, contract, and even vary between expansion and contractions. We used a descriptor as to whether the species breeding range in Maine was increasing, decreasing, stable, or unknown from the mid-1980s through the mid-1990s. Relatively little is known about range shifts in amphibians and reptiles; more is known about range changes in mammals, especially game species.

Game species: This was a "Yes" or "No" depending upon whether or not hunting or trapping of the species is allowed. In terms of amphibians and reptiles, only the Common Snapping Turtle[a] was considered a "game species" because it is harvested, under permit, for commercial purposes (i.e., food).

Population level: This descriptor was an attempt to qualitatively represent a species' relative abundance, comparing abundances of species within general groups within Maine (i.e., amphibians, reptiles, small mammals, large mammals). For example, we consider White-tailed Deer to be "abundant" relative to other large mammals even though their absolute numbers are much lower than, say, Deer Mice, or to deer densities in states south of Maine.

Population trend: Population trends (i.e., increasing, decreasing, or stable) are generally unknown for amphibians and reptiles in Maine, but a newly created monitoring program will provide better data in the future. In contrast, trends in populations of mammals that are hunted or trapped are fairly well known [i.e., records kept by the Maine Department of Inland Fisheries and Wildlife (MDIFW)], although care must be taken when using harvest data to infer trends because effort does affect harvest levels.

Heritage ranks: Originally from TNC, these ranks are used by state Heritage Programs to indicate conservation concern. In Maine, ranks for animals are assigned by the MDIFW (The Maine Natural Areas Program, Department of Conservation, assigns ranks for plants). Ranks represent the level of risk of extinction for each species in terms of rangewide (i.e., global) and statewide distributions. Scores may begin with a **G**, representing a **global** rank, or an **S**, representing a **statewide** code. To these are added "element ranks," with definitions as follows:

1 = Critically imperiled in Maine because of extreme rarity (five or fewer occurrences of very few remaining individuals), or because some aspect of its biology makes it especially vulnerable to extirpation from Maine.

2 = Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals), or because of other factors making it vulnerable to further decline.

3 = Rare in Maine (on the order of 20-100 occurrences).

[a] - See Species Information for scientific names.

4 = Apparently secure in Maine.

5 = Demonstrably secure in Maine.

S? = Element is not yet ranked in the state. ["**?**" is also used as a qualifier after a numeric rank (i.e., **S1?**) to denote inexactness or uncertainty of the numeric value (status); the "**?**" always qualifies the character immediately preceding it in the **S**rank.]

A = Accidental in Maine, including species that only sporadically breed in Maine.

B = Qualifier that notes the species breeds in Maine.

E = An exotic species established in Maine; may be native elsewhere in North America.

N = Qualifier that notes the species does not breed in Maine.

PB = Potential breeder in Maine but no occurrences reported.

U = Possibly in peril in Maine, but status uncertain; need more information.

Z = Regularly passes through Maine but enduring, mappable occurrences cannot be defined; this rank pertains only to migrant animals.

Federally listed: "**Yes**" if listed as endangered (**E**) or threatened (**T**) by the Federal government (i.e., US Fish and Wildlife Service); "**No**" if not Federally listed.

State listed: "**Yes**" if listed as endangered (**E**) or threatened (**T**) by the State of Maine (i.e., MDIFW); otherwise, "**No**."

Knowledge: A subjective statement by us as to how adequate we believed available information to be for modeling the habitat relations of a species. A high rank does not imply our overall knowledge of a species is high, only that the information used in this document is reasonably good. Even for the most common species such as deer and crows, many questions remain about their ecology. Readers can judge for themselves the adequacy of available data for a species by reviewing the articles cited in **References** below.

General habitats used: A written description of the habitats used by a species. Special attention was given to including habitats used for breeding (i.e., critical to the species'

survival) and feeding (i.e., critical to the individual's survival).

Specific habitats used: Habitats that were known to be needed for a particular part of a species' life cycle (i.e., cavities to raise young, vernal pools to lay eggs) are mentioned here.

Comments: Included here are notes on those biological issues unique to a species that may relate as to whether or not a species should be included in ME-GAP (e.g., questions as to taxonomic uniqueness, introductions versus re-introductions), and special features of habitat models (e.g., assumes vernal pools are present in floodplain).

Predicted habitat quantities: A table that shows habitat amounts (ha) for the 37 habitats and land cover classes used in ME-GAP, regardless of use (for definitions of habitat and land use classes, see Appendix 1 in Krohn *et al.* [1998]). Habitats that we considered the species to use are shown as a normal font, whereas those habitats we considered unlikely to be used by the species are shown in a smaller italic font. Having areas included in predicted distribution for habitats that were considered unsuitable may seem inappropriate, but consider how the maps were produced. We believe that modeling species at 30 m resolution (the full resolution of the habitat map) would use excessive computer time without helping to improve our understanding of species statewide distributions in Maine. The accuracy of the habitat map increases at coarser resolutions, to a point (Hepinstall *et al.*, In Preparation), our knowledge of the spatial relations of species is not refined enough to warrant such precision, and finally, almost all species we modeled are sufficiently mobile that their home range would include more than one 30 x 30 m cell. We therefore generalized the predicted distributions to 90 x 90 m, reducing the computer time to process species approximately 9-fold. Habitats were rated as their value to species at 30 m resolution, and only after habitats had been scored as used or unused, the predicted distribution of the species was generalized to 90 m cells. During subsequent analyses conducted to create the tables shown, the predicted distribution grids were overlaid upon the original habitat map. Each 90 x 90 m cell overlaid nine 30 x 30 m cells, including some cells that were *not habitats used by the species*. The algorithms used ensure that the majority of the 9 cells (i.e., a BLOCKMAJORITY command in GRID) are used by the species, but some may not be. The non-used habitats that fall within these 90 m cells yield area estimates for the habitats shown in italics. Most of the areas for habitats shown as non-used are small relative to the quantities of habitat judged used, as expected from an artifact of generalizing the edges of landscape patches. For habitat types that are extremely fragmented, however, the quantity may be large. As an example, the values for individual patches of grasslands in Maine are typically very small. While grassland patches may be small, with much of their relative area near a forest or other used habitat, the total area estimated to be used can be high.

<u>Second Page</u>

This page consists of three maps, two smaller maps showing the range (i.e., general) distribution of a species in Maine (lower right) and the region (upper left), and a page-sized map showing the

prediction distribution in Maine (i.e., black = presence, white = absence). General descriptions as to how these predictions were made follow.

Species ranges

Ranges were initially defined by township boundaries using DeGraaf and Rudis (1986) to place the initial line of occupied versus unoccupied geographic areas. Atlas data for amphibians and reptiles (Hunter *et al*. 1992), and harvest and observation data from the MDIFW, were used to modify these initial lines. Literature from Maine, as well as from New Hampshire and the two adjacent provinces, provided additional sources of data for modifying the locations of range lines. Once readily available sources of information were exhausted, the range limits from townships were turned into smooth lines. Range maps for each vertebrate species (as well as the habitat relationships information we had synthesized) were sent-out for review. Review comments were incorporated and final range maps stored as raster ARC/INFO grids. In the case of birds, the accuracy of our empirical range limits was tested against observational data (Boone 1996), but we had no independent sources of broad-scale data on the distributions of amphibians, reptiles, or mammals that could be used for testing. For additional information on delineation of range limits, see Methods under Predicted Animal Species Distributions and Species Richness in Krohn *et al*. (1998). Because we realize that range limits are dynamic (Hengeveld 1992), but had no way to map this variation, we tried to capture this variation of a species' range with a statement in **Breeding range change** (see above), and by blurring the range edge in the predicted distributions (see below).

Predicted distributions

Our first task in predicting the distributions of Maine's terrestrial vertebrates was to build a database that defined, for each species, what habitats were and were not used (i.e., species-habitat relations). The database that was developed considered breeding and feeding habitats and assigned a level of use by each vertebrate species to 47 habitat types. The database was constructed as species-specific matrices based on technical literature (see Appendices 1 and 2) and expert review of the species-habitat matrices. As in the case of range delineation, DeGraaf and Rudis (1986) was the starting point for our species-habitat relations database. In addition to relating the occurrence of terrestrial vertebrates to habitats, we also used elevation, hydrology, and National Wetlands Inventory wetland types as ancillary data when appropriate. These data were available in digital form, were statewide coverages, and were variables commonly referred to in species-habitat studies.

The goal of each species-habitat model was to identify areas of Maine where a given vertebrate species had a reasonable chance of occurring. Thus, we selected for the model those habitats considered to be suitable for each species, then where appropriate reduced the habitats potentially used with ancillary data. For example, the American Beaver uses regenerating hardwoods for food and for creating dams and lodges. However, regenerating stands far from water have a lower probability of being used than those adjacent to water. Thus, the habitat model for beaver

included a “distance to water” variable as well as a set of habitat types known to be used by beaver. An example species-habitat model, in computer form, is shown in Appendix 5 of Krohn *et al*. (1998), and the modeling procedure in general is discussed in more detail in Methods under Predicted Animal Species Distributions and Species Richness in Krohn *et al*. (1998).

Range limits were defined as lines whereas in reality the abundances of species across a landscape, given the way animal populations reproduce and die, function as an ever changing set of probabilities of occurrences (and not merely as simple “0s” [absent] and “1s” [present]). To keep our predicted vertebrate distributions from having sharp range edges, we blurred the predicted distributions 3 to 50 km from the range limit, depending upon rarity and mobility of species. For example, a rare species with a patchy distribution may have had only a large enough range where 3 km could be blurred. In contrast, more mobile species that were widely distributed across Maine may have their range edges blurred along a 50 km buffer. Habitat patches that were deleted in the buffer (i.e., blurr) zone at the edge of a species’ range were randomly selected, with the selection probability stratified by the quality of the habitat for the species (see Krohn *et al.* 1998).

To test our predicted vertebrate distributions, we compared our results to those obtained from field inventories. We had 10 test sites distributed statewide, five with long-term (>> 10 years), and five with short-term (0 = 5 years) field observations. While all 10 sites had data on birds, only three (two long-term and one short-term) had data on amphibians and reptiles, whereas four test sites had data on mammals (three long-term sites and one short-term). On the two sites with long-term data on amphibians and reptiles, and the three sites with long-term mammal data, the median (range) rates of omission (i.e., percentage of species present in the field data but not predicted by ME-GAP) were 0 %, 10% (0-20 %) and 5 % (3-11 %) for amphibians, reptiles, and mammals, respectively. Corresponding median (range) rates for commission errors (i.e., percentage of species predicted to be present but not in the field data) were 0 %, 5 % (0-10 %), and 19 % (11-36 %) for amphibians, reptiles, and mammals, respectively. Because commission errors were higher on test sites with short- versus long-term field data, and rates were higher for species with low versus high Likelihood of Occurrence Ranks (Boone and Krohn, In Press), we suspect more of this error to be due to incomplete field inventories (i.e., sites not inventoried long enough, inadequate methods used for some species) than to over-prediction of the ME-GAP species-habitat models (although some over-prediction did occur). For additional details on testing the predicted vertebrate occurrences, see Accuracy Assessment under Predicted Animal Distributions and Species Richness in Krohn *et al*. (1998).

Disclaimer

Although these data have been processed successfully on a computer system at the USGS Biological Resources Division (BRD), no warranty expressed or implied is made regarding the accuracy or utility of the data on any other system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies to individual use of

the data and aggregate use with other data. It is strongly recommended that these data are directly acquired from a BRD server (see **Obtaining GAP Data** below) and not indirectly through other sources which may have changed the data in some way. It is also strongly recommended that careful attention be paid to the content of the metadata file associated with these data. The USGS BRD shall not be held liable for improper or incorrect use of the data described and/or contained herein.

These data were complied with regard to the following standards. Please be aware of the limitations of the data. These data are meant to be used at a scale of 1:100,000 or smaller (such as 1:250,000 or 1:500,000) for the purpose of assessing the conservation status of animals and vegetation types over large geographic regions. The data may or may not have been assessed for statistical accuracy. Data evaluation and improvement may be ongoing. The USGS Biological Resources Division makes no claim as to the data's suitability for other purposes. This is writable data which may have been altered from the original product if not obtained from a designated data distributor identified above.

Obtaining GAP data

The National Gap Analysis Program has a Gap Analysis home page which can be accessed through the following address: *http://www.gap.uidaho.edu/gap*. ME-GAP data, as well as data from Gap Analysis projects of other states, is available from this web site.

References

Appendix 1 and 2 contain the references used to determine the habitat relations of amphibians and reptiles, and mammals, respectively, for ME-GAP. Readers can judge for themselves the adequacy of the information used to determine the status and habitat relations of Maine's wildlife by looking at those references cited here for the species, or species groups, of interest.

Literature cited

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BLUE-SPOTTED SALAMANDER (*Ambystoma laterale, A. laterale x jeffersonianum*)

Element code: AAAA0106

ME-GAP code: AMLA

Order: Caudata

Family: Ambystomatidae

Breeding range change: Stable

Game species: No

Population level: Uncommon

Population trend: Unknown

Heritage ranks: G5 . . S4

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Blue-spotted Salamanders breed in vernal pools or ditches (generally small enough to be without fish) in early spring. These pools are most often associated with deciduous or mixed forest stands. Upon transformation, juvenile salamanders disperse to upland habitats. These habitats are also typically deciduous or mixed forests, or residential areas, and the salamanders are associated with humid places, with cover (e.g., logs or rocks to hide under), or loose soil in which to burrow.

Specific habitats used: Temporary or vernal pools are used by Blue-spotted Salamanders for breeding and larval stages. These breeding pools are usually without fish.

Comments: Blue-spotted Salamanders and Jefferson's Salamanders, which breed west of Maine, may interbreed. These crosses may yield offspring with complex genetic relationships. These offspring, usually female, include Tremblay's and Silvery Salamanders. Forested areas are assumed to have vernal pools.

Predicted habitat quantities:

BLUE-SPOTTED SALAMANDER					**Total in ha**: 6,127,316
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	85,841	Fresh emergent	58,617
Abandoned field	14,145	Heavy partial cut	*78,092*	Peatland	42,783
Blueberry field	*4,611*	Deciduous forest	1,169,976	Wet meadow	13,512
Grassland	*168,327*	Decid./Conif. forest	1,158,850	Salt aquatic bed	*2,652*
Crops/Ground	*28,318*	Conif./Decid. forest	1,564,312	Salt emergent	*916*
Developed lands		Coniferous forest	704,171	Mudflat	*1,235*
Sparse residential	43,832	**Wetlands**		Sand shore	*250*
Dense residential	*6,050*	Deciduous forested	60,065	Gravel shore	*638*
Urban/Industrial	*108*	Coniferous forested	341,262	Rock shore	*1,416*
Highways/Runways	*310*	Dead-forested	2,257	Shallow water	*8,397*
Forestlands		Decid. shrub-scrub	112,549	Open water	*57,374*
Clearcut	*54,962*	Conifer. shrub-scrub	13,221	**Other**	
Early regeneration	*175,801*	Dead shrub-scrub	66	Alpine tundra	*382*
Late regeneration	*151,310*	Fresh aquatic bed	97	Exposed rock/Talus	*612*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SPOTTED SALAMANDER (*Ambystoma maculatum*)

Element code: AAAA0109

ME-GAP code: AMMA

Order: Caudata

Family: Ambystomatidae

Breeding range change: Stable

Game species: No

Population level: Common

Population trend: Unknown

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Spotted Salamanders are primarily terrestrial "mole salamanders"(i.e., Ambystomidae), which occur in areas with soil suitable for burrowing. Adult Spotted Salamanders inhabit moist deciduous or mixed forests most commonly, although all forests types may be used. In these habitats, these salamanders may move underground, using existing burrows, or may take cover under logs or rocks. In early spring, Spotted Salamanders move to vernal pools and ditches for breeding, selecting temporary (i.e., fishless) water bodies with moderate pH ($ 3.9).

Specific habitats used: Temporary pools or small streams near forest stands are used as breeding habitats by Spotted Salamanders.

Comments: Forested areas are assumed to have vernal pools.

Predicted habitat quantities

SPOTTED SALAMANDER					**Total in ha:** 6,417,942
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	93,433	Fresh emergent	60,394
Abandoned field	15,289	Heavy partial cut	*87,116*	Peatland	42,994
Blueberry field	*4,942*	Deciduous forest	1,185,796	Wet meadow	13,667
Grassland	*175,398*	Decid./Conif. forest	1,190,966	Salt aquatic bed	3,796
Crops/Ground	*30,424*	Conif./Decid. forest	1,619,190	Salt emergent	*983*
Developed lands		Coniferous forest	721,434	Mudflat	1,975
Sparse residential	45,673	**Wetlands**		Sand shore	*288*
Dense residential	*6,086*	Deciduous forested	61,671	Gravel shore	*676*
Urban/Industrial	*118*	Coniferous forested	349,617	Rock shore	*1,542*
Highways/Runways	*326*	Dead-forested	2,352	Shallow water	*8,669*
Forestlands		Decid. shrub-scrub	115,914	Open water	*59,195*
Clearcut	*59,042*	Conifer. shrub-scrub	13,430	**Other**	
Early regeneration	*210,292*	Dead shrub-scrub	71	Alpine tundra	*389*
Late regeneration	234,072	Fresh aquatic bed	97	Exposed rock/Talus	*625*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN NEWT (*Notophthalmus viridescens*)

Element code: AAAF0103

ME-GAP code: NOVI

Order: Caudata

Family: Salamandridae

Breeding range change: Stable

Game species: No

Population level: Abundant

Population trend: Unknown

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Eastern Newts have a life cycle unlike other Maine salamanders, in that they are aquatic in the larval stage, terrestrial in the eft stage, and aquatic again as sexually mature adults (some populations of newts are neotenic, but this has not been reported in Maine). In their aquatic stages, newts select ponds, slow moving streams, and the edges of lakes. Water bodies with mud substrates are selected, but Eastern Newts may occur in water bodies with various substrates (e.g., rock, gravel). Eft-stage Eastern Newts may inhabit forest stands of various types, and can occasionally be found in clearcut or regenerating areas. Efts are usually found near aquatic habitat, and seek cover under logs or rocks.

Specific habitats used: Larval and adult Eastern Newts require slow-moving water bodies with vegetation.

Comments:

Predicted habitat quantities

EASTERN NEWT					Total in ha: 2,533,388
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	31,972	Fresh emergent	60,968
Abandoned field	5,630	Heavy partial cut	36,274	Peatland	41,551
Blueberry field	*1,961*	Deciduous forest	174,967	Wet meadow	13,778
Grassland	*67,273*	Decid./Conif. forest	301,455	Salt aquatic bed	*275*
Crops/Ground	*13,806*	Conif./Decid. forest	625,681	Salt emergent	*1,039*
Developed lands		Coniferous forest	323,914	Mudflat	746
Sparse residential	15,951	**Wetlands**		Sand shore	55
Dense residential	*2,503*	Deciduous forested	59,081	Gravel shore	2,526
Urban/Industrial	*59*	Coniferous forested	345,918	Rock shore	2,258
Highways/Runways	*142*	Dead-forested	2,331	Shallow water	12,301
Forestlands		Decid. shrub-scrub	117,819	Open water	*59,728*
Clearcut	*26,703*	Conifer. shrub-scrub	13,568	**Other**	
Early regeneration	*86,930*	Dead shrub-scrub	43	Alpine tundra	*81*
Late regeneration	83,765	Fresh aquatic bed	108	Exposed rock/Talus	*226*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN DUSKY SALAMANDER (*Desmognathus fuscus*)

Element code: AAAD0304 **ME-GAP code:** DEFU

Order: Caudata **Family:** Plethodontidae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Northern Dusky Salamanders are one of the three stream-dwelling salamanders of Maine. Larval northern dusky salamanders inhabit narrow (e.g., < 1 m wide), fast-flowing mountain streams that are cool (12 to 14.5 E) and have moderate pH (e.g., $4.0). Adults inhabit the edges of those streams, taking cover under logs and rocks. Seeps or springs within forested areas are sometimes inhabited by Northern Dusky Salamanders.

Specific habitats used: Streams or seeps that are highly oxygenated and permanent are used as breeding habitat by Northern Dusky Salamanders.

Comments: Of the five lungless salamanders in Maine, three (Northern Dusky, Northern Two-lined, and Spring Salamander) inhabit mountain streams. These species absorb oxygen through their permeable skins, so the highly oxygenated mountain streams are selected.

Predicted habitat quantities:

NORTHERN DUSKY SALAMANDER					**Total in ha:** 481,770
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*2,841*	Fresh emergent	*5,290*
Abandoned field	*472*	Heavy partial cut	*3,196*	Peatland	*2,131*
Blueberry field	*215*	Deciduous forest	32,066	Wet meadow	*836*
Grassland	*8,191*	Decid./Conif. forest	59,600	Salt aquatic bed	*265*
Crops/Ground	*1,144*	Conif./Decid. forest	117,407	Salt emergent	*454*
Developed lands		Coniferous forest	59,262	Mudflat	7,970
Sparse residential	*1,000*	**Wetlands**		Sand shore	731
Dense residential	*328*	Deciduous forested	20,096	Gravel shore	*39*
Urban/Industrial	*12*	Coniferous forested	121,909	Rock shore	*40*
Highways/Runways	*7*	Dead-forested	764	Shallow water	2,220
Forestlands		Decid. shrub-scrub	*9,363*	Open water	*4,593*
Clearcut	*2,908*	Conifer. shrub-scrub	*919*	**Other**	
Early regeneration	*8,641*	Dead shrub-scrub	*3*	Alpine tundra	*26*
Late regeneration	*6,783*	Fresh aquatic bed	*11*	Exposed rock/Talus	*39*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN TWO-LINED SALAMANDER (*Eurycea bislineata*)

Element code: AAAD0501

ME-GAP code: EUBI

Order: Caudata

Family: Plethodontidae

Breeding range change: Stable

Game species: No

Population level: Abundant

Population trend: Unknown

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Northern Two-lined Salamanders are the most abundant of the three stream side salamanders of Maine. They are most common along the banks of cool, well oxygenated, high-order streams (< 1 m wide), with moderate pH ($ 4.2). However, Northern Two-lined Salamanders may occur along the banks of larger rivers or the edges of lakes, or within bogs or wet forest areas. Northern Two-lined Salamanders take cover under stream side logs or rocks. After precipitation falls, these salamanders may move more than 100 m from water.

Specific habitats used: Permanent moving water is used as breeding habitat by this species.

Comments: Northern Two-lined Salamanders are smaller than the other stream side salamanders and may be eaten by Northern Dusky and Spring Salamanders.

Predicted habitat quantities:

NORTHERN TWO-LINED SALAMANDER					Total in ha: 2,368,158
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*22,662*	Fresh emergent	59,541
Abandoned field	*3,675*	Heavy partial cut	*24,271*	Peatland	40,940
Blueberry field	*1,712*	Deciduous forest	169,652	Wet meadow	13,750
Grassland	*61,704*	Decid./Conif. forest	289,605	Salt aquatic bed	317
Crops/Ground	*12,041*	Conif./Decid. forest	602,957	Salt emergent	2,304
Developed lands		Coniferous forest	318,226	Mudflat	840
Sparse residential	*9,561*	**Wetlands**		Sand shore	53
Dense residential	*2,243*	Deciduous forested	57,313	Gravel shore	2,479
Urban/Industrial	*45*	Coniferous forested	334,988	Rock shore	2,223
Highways/Runways	*100*	Dead-forested	2,245	Shallow water	10,144
Forestlands		Decid. shrub-scrub	114,742	Open water	*41,061*
Clearcut	*23,367*	Conifer. shrub-scrub	13,299	**Other**	
Early regeneration	*73,405*	Dead shrub-scrub	43	Alpine tundra	*80*
Late regeneration	*56,250*	Fresh aquatic bed	106	Exposed rock/Talus	*212*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SPRING SALAMANDER (*Gyrinophilus porphyriticus*)

Element code: AAAD0602 **ME-GAP code:** GYPO

Order: Caudata **Family:** Plethodontidae

Breeding range change: Stable **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G5 . . S3 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Spring Salamanders are the largest of the five lungless salamanders of Maine, and so have the largest volume to surface area ratio. Because of this, spring salamanders are most common in and around cold, rapid moving, well oxygenated mountain streams. These salamanders may be found within the stream, or under rocks and logs on the stream banks. Spring Salamanders may also occur near the edges of lakes, in boggy areas, or in spring and seeps within forestlands.

Specific habitats used: Cold, highly oxygenated, permanent water is selected as breeding habitat by Spring Salamanders.

Comments: Spring Salamanders are less abundant than the other two stream salamanders in Maine, the Northern Dusky and the Northern Two-line Salamanders. Where Spring Salamanders share habitat with these species the larger Spring Salamander will eat the smaller salamanders.

Predicted habitat quantities:

SPRING SALAMANDER					**Total in ha:** 232,427
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*1,695*	Fresh emergent	9,545
Abandoned field	412	Heavy partial cut	*1,759*	Peatland	2,876
Blueberry field	*13*	Deciduous forest	*7,046*	Wet meadow	2,238
Grassland	*5,510*	Decid./Conif. forest	39,014	Salt aquatic bed	*0*
Crops/Ground	*455*	Conif./Decid. forest	50,875	Salt emergent	*115*
Developed lands		Coniferous forest	20,156	Mudflat	*10*
Sparse residential	*397*	**Wetlands**		Sand shore	*1*
Dense residential	*272*	Deciduous forested	17,910	Gravel shore	109
Urban/Industrial	*14*	Coniferous forested	37,862	Rock shore	20
Highways/Runways	*2*	Dead-forested	267	Shallow water	2,334
Forestlands		Decid. shrub-scrub	17,952	Open water	*5,448*
Clearcut	*995*	Conifer. shrub-scrub	2,465	**Other**	
Early regeneration	*1,955*	Dead shrub-scrub	12	Alpine tundra	*0*
Late regeneration	*2,683*	Fresh aquatic bed	*2*	Exposed rock/Talus	*6*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

FOUR-TOED SALAMANDER (*Hemidactylium scutatum*)

Element code: AAAD0801 **ME-GAP code:** HESC

Order: Caudata **Family:** Plethodontidae

Breeding range change: Stable **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G5 . . S3 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Four-toed Salamanders breed in vernal pools, peatlands, or forested wetlands, typically with slow moving streams or small ponds present. Sphagnum moss is a common feature of Four-toed Salamander habitat. Larval salamanders are aquatic, inhabiting sphagnum moss beds and small pools. Adults are terrestrial forest inhabitants, taking cover under sphagnum moss or within the root mass of downed trees, for example.

Specific habitats used: Sphagnum moss beds with some open water are used as breeding habitat by Four-toed Salamanders, and larval stages. Sphagnum is also used by adults.

Comments: Four-toed Salamanders were rarely observed up to about 1990, with four animals recorded. Observations are more common now, but still the species is difficult to locate. Four-toed Salamanders may be statewide.

Predicted habitat quantities:

FOUR-TOED SALAMANDER					**Total in ha:** 585,501
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	6,900	Fresh emergent	27,130
Abandoned field	1,965	Heavy partial cut	5,604	Peatland	15,846
Blueberry field	*121*	Deciduous forest	27,434	Wet meadow	5,484
Grassland	*9,733*	Decid./Conif. forest	68,416	Salt aquatic bed	*697*
Crops/Ground	*1,798*	Conif./Decid. forest	136,079	Salt emergent	*358*
Developed lands		Coniferous forest	62,749	Mudflat	*496*
Sparse residential	*1,416*	**Wetlands**		Sand shore	*73*
Dense residential	*469*	Deciduous forested	41,135	Gravel shore	*23*
Urban/Industrial	*2*	Coniferous forested	96,949	Rock shore	*185*
Highways/Runways	*16*	Dead-forested	1,094	Shallow water	2,634
Forestlands		Decid. shrub-scrub	49,258	Open water	*2,812*
Clearcut	*2,639*	Conifer. shrub-scrub	6,410	**Other**	
Early regeneration	*3,771*	Dead shrub-scrub	18	Alpine tundra	*0*
Late regeneration	*5,673*	Fresh aquatic bed	94	Exposed rock/Talus	*20*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN RED-BACKED SALAMANDER (*Plethedon cinereus*)

Element code: AAAD1202

ME-GAP code: PLCI

Order: Caudata

Family: Plethodontidae

Breeding range change: Stable

Game species: No

Population level: Abundant

Population trend: Unknown

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: Northern Red-backed Salamanders are completely terrestrial (larval stages are completed within the egg) and common. Northern Red-backed Salamanders use upland forests of many types, but are generally more abundant in deciduous than coniferous forests, and later over earlier successional stages. The salamanders may move up woody stems in rainy weather, but generally they are found under logs, rocks, or leaf litter. Northern Red-backed Salamanders avoid areas of low pH (< 3.9), little leaf litter, or little understory cover.

Specific habitats used: Canopy and ground cover are almost always available at sites with northern red-backed salamanders, as moist habitats appear critical to this species.

Comments: Although Northern Red-backed Salamanders have no lungs, they are terrestrial. They therefore must maintain moist skin to allow for oxygen exchange.

Predicted habitat quantities:

REDBACK SALAMANDER					Total in ha: 6,342,806
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	99,178	Fresh emergent	*28,063*
Abandoned field	14,680	Heavy partial cut	134,271	Peatland	33,100
Blueberry field	*5,398*	Deciduous forest	1,199,740	Wet meadow	*5,748*
Grassland	*170,187*	Decid./Conif. forest	1,200,396	Salt aquatic bed	*2,748*
Crops/Ground	*31,203*	Conif./Decid. forest	1,576,053	Salt emergent	*889*
Developed lands		Coniferous forest	684,354	Mudflat	*1,293*
Sparse residential	45,908	**Wetlands**		Sand shore	*254*
Dense residential	*5,887*	Deciduous forested	*29,975*	Gravel shore	*479*
Urban/Industrial	*92*	Coniferous forested	*161,879*	Rock shore	*1,439*
Highways/Runways	*292*	Dead-forested	*1,332*	Shallow water	*6,567*
Forestlands		Decid. shrub-scrub	*51,561*	Open water	*49,280*
Clearcut	*67,823*	Conifer. shrub-scrub	*4,866*	**Other**	
Early regeneration	470,223	Dead shrub-scrub	*53*	Alpine tundra	*421*
Late regeneration	256,478	Fresh aquatic bed	*45*	Exposed rock/Talus	*654*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN TOAD (*Bufo americanus*)

Element code: AABB0102 **ME-GAP code:** BUAM

Order: Anura **Family:** Bufonidae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: American Toads are habitat generalists, using almost all non-industrial (i.e., city centers) habitats available in Maine. Toads breed in shallow open water such as vernal pools, gravel pits, roadside ditches, or the margins of lakes. After metamorphosis, American Toads move out to terrestrial habitats. American Toads are most common in moist deciduous forests, but are common in any type of forest, in forested and unforested wetlands, and harvested areas. In addition, American Toads may occur in agricultural areas, residential areas, and barren lands.

Specific habitats used: Temporary or permanent water is required for breeding and larval stages of American Toads.

Comments: Almost any habitat patch mapped by ME-GAP will contain water sufficient for this species.

Predicted habitat quantities:

AMERICAN TOAD					Total in ha: 7,230,310
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	101,325	Fresh emergent	65,421
Abandoned field	18,640	Heavy partial cut	133,077	Peatland	44,314
Blueberry field	11,973	Deciduous forest	1,245,424	Wet meadow	14,611
Grassland	447,291	Decid./Conif. forest	1,282,882	Salt aquatic bed	4,343
Crops/Ground	103,382	Conif./Decid. forest	1,707,539	Salt emergent	1,426
Developed lands		Coniferous forest	738,287	Mudflat	2,375
Sparse residential	62,397	**Wetlands**		Sand shore	492
Dense residential	*12,278*	Deciduous forested	68,333	Gravel shore	2,603
Urban/Industrial	*381*	Coniferous forested	361,283	Rock shore	3,016
Highways/Runways	575	Dead-forested	2,517	Shallow water	13,430
Forestlands		Decid. shrub-scrub	125,710	Open water	*67,508*
Clearcut	*72,302*	Conifer. shrub-scrub	14,506	**Other**	
Early regeneration	*244,411*	Dead shrub-scrub	103	Alpine tundra	1,859
Late regeneration	252,863	Fresh aquatic bed	121	Exposed rock/Talus	*1,311*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GRAY TREEFROG (*Hyla versicolor*)

Element code: AABC0213

ME-GAP code: HYVE

Order: Anura

Family: Hylidae

Breeding range change: Stable

Game species: No

Population level: Common

Population trend: Unknown

Heritage ranks: G5 . . S4

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Gray Treefrogs inhabit the trees and shrubs that are near temporary or permanent water. These treefrogs will typically breed in water bodies without predatory fish (e.g. vernal pools, small ponds, or roadside ditches), but weedy lakes are also used. After metamorphosis, Gray Treefrogs move to vegetation near these water bodies. In summer, Gray Treefrogs may be found perched in vegetation, under the flaking bark of trees, within tree cavities, or under rotting logs or moss.

Specific habitats used: Aquatic sites are used by Gray Treefrogs for breeding, and during their larval stages.

Comments: Almost all forested areas in Maine include unmapped waters and so are assumed to be adequate habitat for this species.

Predicted habitat quantities:

GRAY TREEFROG					**Total in ha:** 3,613,714
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	51,227	Fresh emergent	40,651
Abandoned field	17,319	Heavy partial cut	49,601	Peatland	*4,351*
Blueberry field	*3,311*	Deciduous forest	499,050	Wet meadow	10,664
Grassland	342,416	Decid./Conif. forest	579,109	Salt aquatic bed	*1,929*
Crops/Ground	*15,781*	Conif./Decid. forest	991,929	Salt emergent	*1,296*
Developed lands		Coniferous forest	334,946	Mudflat	*1,127*
Sparse residential	52,632	**Wetlands**		Sand shore	*257*
Dense residential	*4,556*	Deciduous forested	53,594	Gravel shore	*52*
Urban/Industrial	*173*	Coniferous forested	181,810	Rock shore	*510*
Highways/Runways	*261*	Dead-forested	1,738	Shallow water	6,886
Forestlands		Decid. shrub-scrub	76,415	Open water	*13,047*
Clearcut	*20,231*	Conifer. shrub-scrub	8,801	**Other**	
Early regeneration	123,860	Dead shrub-scrub	42	Alpine tundra	*0*
Late regeneration	123,574	Fresh aquatic bed	101	Exposed rock/Talus	*465*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SPRING PEEPER (*Pseudacris crucifer*)

Element code: AABC0509 **ME-GAP code:** HYCR

Order: Anura **Family:** Hylidae

Breeding range change: Stable **Game species**: No

Population level: Abundant **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Spring Peepers may be located in any forested area throughout the state, perhaps most commonly in second growth stands. Forested and nonforested wetlands are also occupied. Spring Peepers will take cover under leaves or moss in moist forests, and will call from the ground or from a slightly elevated place. Breeding and the larval life stages occur in temporary or permanent pools of many types, including vernal pools, ditches, and ponds.

Specific habitats used: Temporary or permanent waterbodies are used as breeding habitats and by Spring Peeper's larval stages.

Comments: Spring Peepers are the smallest species of frog in Maine. The latter part of their scientific name, crucifer, refers to the species characteristic dark cross or crucifix upon their back. Forested area are assumed to have water adequate for this species.

Predicted habitat quantities

SPRING PEEPER					Total in ha: 7,057,229
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	105,003	Fresh emergent	58,144
Abandoned field	16,000	Heavy partial cut	140,828	Peatland	44,035
Blueberry field	*6,257*	Deciduous forest	1,223,340	Wet meadow	13,244
Grassland	*196,031*	Decid./Conif. forest	1,252,621	Salt aquatic bed	3,997
Crops/Ground	*35,822*	Conif./Decid. forest	1,666,544	Salt emergent	1,217
Developed lands		Coniferous forest	739,240	Mudflat	2,120
Sparse residential	50,610	**Wetlands**		Sand shore	420
Dense residential	27,593	Deciduous forested	61,313	Gravel shore	2,573
Urban/Industrial	*538*	Coniferous forested	358,432	Rock shore	2,967
Highways/Runways	*516*	Dead-forested	2,364	Shallow water	12,927
Forestlands		Decid. shrub-scrub	109,420	Open water	*64,504*
Clearcut	*76,752*	Conifer. shrub-scrub	13,378	**Other**	
Early regeneration	495,840	Dead shrub-scrub	85	Alpine tundra	*427*
Late regeneration	271,088	Fresh aquatic bed	97	Exposed rock/Talus	*941*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BULLFROG (*Rana catesbeiana*)

Element code: AABH0107 **ME-GAP code:** RACA

Order: Anura **Family:** Ranidae

Breeding range change: Stable **Game species**: Yes

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: Bullfrogs are one of the most aquatic frogs in Maine, with tadpoles spending three years in slow moving streams, ponds, or wetlands, and adults remaining closely tied to water. Bullfrog populations are highest near the edges of water bodies that contain emergent vegetation and are surrounded by vegetation. Where shoreline vegetation is dense, Bullfrogs will take cover and breed close to shore.

Specific habitats used: During all life stages Bullfrogs use permanent water bodies with floating or emergent vegetation.

Comments: Bullfrogs are the only amphibian that is hunted for reasons other than the pet trade. They are the state's largest frog and people use them in "frogs legs". Currently the harvest is unregulated.

Predicted habitat quantities:

BULLFROG					**Total in ha:** 919,521
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*2,852*	Fresh emergent	47,346
Abandoned field	*708*	Heavy partial cut	*3,089*	Peatland	38,639
Blueberry field	*398*	Deciduous forest	*9,827*	Wet meadow	12,152
Grassland	*11,812*	Decid./Conif. forest	*23,463*	Salt aquatic bed	*269*
Crops/Ground	*2,206*	Conif./Decid. forest	*60,377*	Salt emergent	2,082
Developed lands		Coniferous forest	*36,855*	Mudflat	2,492
Sparse residential	*1,940*	**Wetlands**		Sand shore	454
Dense residential	*787*	Deciduous forested	46,174	Gravel shore	*394*
Urban/Industrial	*33*	Coniferous forested	242,112	Rock shore	*595*
Highways/Runways	*20*	Dead-forested	1,663	Shallow water	9,200
Forestlands		Decid. shrub-scrub	90,837	Open water	235,403
Clearcut	*4,606*	Conifer. shrub-scrub	11,571	**Other**	
Early regeneration	*11,270*	Dead shrub-scrub	40	Alpine tundra	*35*
Late regeneration	*7,673*	Fresh aquatic bed	91	Exposed rock/Talus	*56*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GREEN FROG (*Rana clamitans*)

Element code: AABH0109

ME-GAP code: RACL

Order: Anura

Family: Ranidae

Breeding range change: Stable

Game species: No

Population level: Abundant

Population trend: Unknown

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Adult Green Frogs are terrestrial, but still closely associated with water. Green Frogs will breed in permanent or semi-permanent water, including ponds, streams, the shorelines of lakes, vernal pools, marshes, and flooded gravel pits. Green Frogs are somewhat more common in water bodies within deciduous stands than coniferous stands. Adults may occasionally be located in moist forests, but are usually near water.

Specific habitats used: Permanent or semi-permanent aquatic areas are used as breeding habitats by Green Frogs.

Comments: Green Frogs are one of the most common frogs in Maine. Most ponds will include singing males in the summer. Forested areas are assumed to have water areas adequate for this species.

Predicted habitat quantities:

GREEN FROG					**Total in ha:** 6,151,607
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	87,132	Fresh emergent	59,012
Abandoned field	*8,550*	Heavy partial cut	*79,655*	Peatland	42,796
Blueberry field	*4,061*	Deciduous forest	1,176,273	Wet meadow	13,467
Grassland	*162,467*	Decid./Conif. forest	1,174,296	Salt aquatic bed	3,558
Crops/Ground	*26,821*	Conif./Decid. forest	1,576,352	Salt emergent	1,071
Developed lands		Coniferous forest	708,245	Mudflat	1,814
Sparse residential	*25,202*	**Wetlands**		Sand shore	360
Dense residential	*5,370*	Deciduous forested	60,672	Gravel shore	2,544
Urban/Industrial	*80*	Coniferous forested	342,844	Rock shore	2,820
Highways/Runways	*198*	Dead-forested	2,293	Shallow water	12,252
Forestlands		Decid. shrub-scrub	113,316	Open water	*59,954*
Clearcut	*53,917*	Conifer. shrub-scrub	13,361	**Other**	
Early regeneration	*176,591*	Dead shrub-scrub	66	Alpine tundra	*396*
Late regeneration	*153,063*	Fresh aquatic bed	103	Exposed rock/Talus	*636*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PICKEREL FROG (*Rana palustris*)

Element code: AABH0116

ME-GAP code: RAPA

Order: Anura

Family: Ranidae

Breeding range change: Stable

Game species: No

Population level: Common

Population trend: Unknown

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Pickerel Frogs breed in permanent water bodies (e.g., ponds, streams, springs, and the shores of lakes and rivers) with vegetation present. Ponds with dense shrubs along the banks are selected for breeding. Pickerel Frogs also may breed in the water associated with cattail marshes or sphagnum bogs. After breeding season, adult Pickerel Frogs may move to moist woods, meadows, or grassy fields.

Specific habitats used: Permanent or semi-permanent aquatic habitats are used as breeding habitat by Pickerel Frogs.

Comments: Pickerel Frogs and Northern Leopard Frogs are easily confused. Pickerel Frogs have squarish spots that form rows, and bright orange under their legs. Northern Leopard Frogs have oval spots that tend not to form rows. Forested areas are assumed to have water areas adequate for this species.

Predicted habitat quantities:

PICKEREL FROG					**Total in ha:** 7,602,822
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	107,247	Fresh emergent	66,656
Abandoned field	18,165	Heavy partial cut	*109,690*	Peatland	45,192
Blueberry field	*7,301*	Deciduous forest	1,252,040	Wet meadow	15,027
Grassland	439,704	Decid./Conif. forest	1,305,228	Salt aquatic bed	12,752
Crops/Ground	*56,937*	Conif./Decid. forest	1,731,505	Salt emergent	7,318
Developed lands		Coniferous forest	762,520	Mudflat	20,915
Sparse residential	62,661	**Wetlands**		Sand shore	2,640
Dense residential	*11,835*	Deciduous forested	69,151	Gravel shore	2,876
Urban/Industrial	*374*	Coniferous forested	376,614	Rock shore	4,196
Highways/Runways	*445*	Dead-forested	2,594	Shallow water	13,904
Forestlands		Decid. shrub-scrub	128,703	Open water	*83,731*
Clearcut	*81,365*	Conifer. shrub-scrub	14,696	**Other**	
Early regeneration	507,636	Dead shrub-scrub	103	Alpine tundra	*451*
Late regeneration	279,294	Fresh aquatic bed	122	Exposed rock/Talus	*1,235*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN LEOPARD FROG (*Rana pipiens*)

Element code: AABH0117 **ME-GAP code:** RAPI

Order: Anura **Family:** Ranidae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S3 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Northern Leopard Frogs breed in permanent water with emergent vegetation, such as streams, slow moving rivers, coves of lakes, or water within marshes and bogs. Larval leopard frogs will remain in these waters until transformation, but adults may move away from water during summer. Adult Northern Leopard Frogs select grassy areas and wet meadows, and are more common in deciduous forests than coniferous. Northern Leopard Frogs may move up to 400 m from their breeding ponds, and may migrate up to 1.6 km between breeding pools.

Specific habitats used: Permanent waterbodies of moderate size and depth are used by Northern Leopard Frogs (large, deep ponds do not warm quickly enough, and small, shallow ponds may refreeze after egg laying).

Comments: Northern Leopard and Pickerel Frogs are easily confused. Leopard frogs have oval spots whereas Pickerel Frogs have squarish spots that form rows.

Predicted habitat quantities:

NORTHERN LEOPARD FROG					Total in ha: 3,876,377
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*37,195*	Fresh emergent	39,644
Abandoned field	11,508	Heavy partial cut	95,240	Peatland	31,101
Blueberry field	*3,546*	Deciduous forest	1,103,844	Wet meadow	9,969
Grassland	362,816	Decid./Conif. forest	932,708	Salt aquatic bed	8,589
Crops/Ground	86,373	Conif./Decid. forest	*473,090*	Salt emergent	6,080
Developed lands		Coniferous forest	*100,566*	Mudflat	18,492
Sparse residential	*25,332*	**Wetlands**		Sand shore	2,170
Dense residential	*8,301*	Deciduous forested	44,705	Gravel shore	*439*
Urban/Industrial	*304*	Coniferous forested	*67,721*	Rock shore	*1,247*
Highways/Runways	343	Dead-forested	1,332	Shallow water	8,078
Forestlands		Decid. shrub-scrub	74,882	Open water	*38,301*
Clearcut	76,215	Conifer. shrub-scrub	9,128	**Other**	
Early regeneration	*119,896*	Dead shrub-scrub	70	Alpine tundra	*71*
Late regeneration	*76,204*	Fresh aquatic bed	91	Exposed rock/Talus	*788*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MINK FROG (*Rana septentrionalis*)

Element code: AABH0119 **ME-GAP code:** RASE

Order: Anura **Family:** Ranidae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S4 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Mink Frogs are almost completely aquatic, inhabiting cold, shallow ponds and streams surrounded by vegetation. Bogs, marshes, and aquatic beds with emergent vegetation (sedges, water lilies, or pickerel weed) are important habitats for Mink Frogs. These same water bodies are used by larval and adult Mink Frogs. During periods of heavy rain, adult Mink Frogs may move away from the water, and forage in surrounding forests.

Specific habitats used: Permanent aquatic habitats with nearby vegetation are used by Mink Frogs. Rapids or areas of heavy waves are not used.

Comments:

Predicted habitat quantities:

MINK FROG					**Total in ha:** 758,537
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*2,179*	Fresh emergent	37,251
Abandoned field	*280*	Heavy partial cut	*2,420*	Peatland	33,114
Blueberry field	*279*	Deciduous forest	*4,674*	Wet meadow	8,733
Grassland	*2,635*	Decid./Conif. forest	*12,819*	Salt aquatic bed	576
Crops/Ground	*1,034*	Conif./Decid. forest	*43,998*	Salt emergent	223
Developed lands		Coniferous forest	*35,781*	Mudflat	705
Sparse residential	*853*	**Wetlands**		Sand shore	57
Dense residential	*100*	Deciduous forested	19,480	Gravel shore	3,013
Urban/Industrial	*0*	Coniferous forested	249,564	Rock shore	3,029
Highways/Runways	*1*	Dead-forested	1,251	Shallow water	8,175
Forestlands		Decid. shrub-scrub	76,771	Open water	177,185
Clearcut	*3,283*	Conifer. shrub-scrub	9,399	**Other**	
Early regeneration	*13,835*	Dead shrub-scrub	32	Alpine tundra	*33*
Late regeneration	*5,738*	Fresh aquatic bed	11	Exposed rock/Talus	*27*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WOOD FROG (*Rana sylvatica*)

Element code: AABH0120

ME-GAP code: RASY

Order: Anura

Family: Ranidae

Breeding range change: Stable

Game species: No

Population level: Abundant

Population trend: Unknown

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: Wood Frogs breed within vernal pools in forest stands, slow moving streams, small ponds, or road-side ditches. After breeding, adults (and metamorphosed young) move to upland habitats, sometimes far from water. Near streams, Wood Frogs may select against balsam fir stands. Regarding forest usage in upland sites, Wood Frogs are habitat generalists, occurring in deciduous, mixed, or coniferous stands. Wood Frogs appear to require moist microhabitats, especially in dry forest stands.

Specific habitats used: Breeding and larval Wood Frogs use vernal pools and slow moving water.

Comments: Forested areas are assumed to contain vernal pools and thus shown as habitat.

Predicted habitat quantities:

WOOD FROG					**Total in ha:** 6,700,687
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	92,768	Fresh emergent	62,492
Abandoned field	15,381	Heavy partial cut	*87,468*	Peatland	44,062
Blueberry field	*5,034*	Deciduous forest	1,192,305	Wet meadow	14,501
Grassland	*180,690*	Decid./Conif. forest	1,206,028	Salt aquatic bed	3,882
Crops/Ground	*31,223*	Conif./Decid. forest	1,636,079	Salt emergent	1,141
Developed lands		Coniferous forest	727,259	Mudflat	*1,390*
Sparse residential	45,590	**Wetlands**		Sand shore	*303*
Dense residential	*6,435*	Deciduous forested	63,161	Gravel shore	*1,119*
Urban/Industrial	*143*	Coniferous forested	353,388	Rock shore	*2,216*
Highways/Runways	*333*	Dead-forested	2,430	Shallow water	13,726
Forestlands		Decid. shrub-scrub	118,325	Open water	*274,856*
Clearcut	*59,635*	Conifer. shrub-scrub	13,788	**Other**	
Early regeneration	*211,172*	Dead shrub-scrub	76	Alpine tundra	*398*
Late regeneration	231,114	Fresh aquatic bed	105	Exposed rock/Talus	*667*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON SNAPPING TURTLE (*Chelydra serpentina*)

Element code: RAAB0101

ME-GAP code: CHSE

Order: Testudines

Family: Chelydridae

Breeding range change: Stable

Game species: Yes

Population level: Common

Population trend: Unknown

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: Common Snapping Turtles are generally aquatic, except when females are laying nests or young and non-nesting adults are moving toward or between waterbodies. Snapping turtles are most common in shallow marshes with muddy substrates and emergent vegetation such as cattails or pickerel weed, or in slow moving streams, or coves of lakes. However, Common Snapping Turtles occur in a variety of marshes, streams, ponds, lakes, or vernal pools. Occasionally snapping turtles will occur in rapid moving or deep water, or in brackish habitats. Females nest up to 3 km from water, selecting sandy or loamy soils in which to place the nest.

Specific habitats used: Common Snapping Turtles use permanent bodies of water, often associated with oxbows and marshes.

Comments: Nest sites may be considerable distance from water and to avoid over-representing habitat for this species, not all potential nesting sites are shown as habitat.

Predicted habitat quantities:

SNAPPING TURTLE					**Total in ha:** 911,363
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*2,373*	Fresh emergent	40,728
Abandoned field	3,797	Heavy partial cut	*2,462*	Peatland	31,165
Blueberry field	*577*	Deciduous forest	*10,695*	Wet meadow	10,847
Grassland	69,607	Decid./Conif. forest	*25,375*	Salt aquatic bed	3,916
Crops/Ground	12,642	Conif./Decid. forest	*64,559*	Salt emergent	2,834
Developed lands		Coniferous forest	*32,060*	Mudflat	3,216
Sparse residential	11,743	**Wetlands**		Sand shore	660
Dense residential	*1,526*	Deciduous forested	47,620	Gravel shore	424
Urban/Industrial	*87*	Coniferous forested	189,124	Rock shore	1,247
Highways/Runways	130	Dead-forested	1,621	Shallow water	7,589
Forestlands		Decid. shrub-scrub	79,420	Open water	223,347
Clearcut	*4,803*	Conifer. shrub-scrub	9,215	**Other**	
Early regeneration	*8,094*	Dead shrub-scrub	25	Alpine tundra	*8*
Late regeneration	*7,395*	Fresh aquatic bed	105	Exposed rock/Talus	324

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON MUSK TURTLE (*Sternotherus odoratus*)

Element code: RAAE0204

ME-GAP code: STOD

Order: Testudines

Family: Kinosternidae

Breeding range change: Stable

Game species: No

Population level: Uncommon

Population trend: Unknown

Heritage ranks: G5 . . S3

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Common Musk Turtles are completely aquatic, except when egg laying. These turtles are most common in permanent bodies of water that are cold and clear, but have aquatic vegetation present and muddy substrates. Common Musk Turtles will use ponds or shallow lakes, slow moving streams and rivers, and aquatic beds or marshes. Females will lay eggs in nests that are placed near water (< 11 m in a Pennsylvania study), in loam soil or decaying vegetation.

Specific habitats used: Common Musk Turtles inhabit permanent water. Water bodies that have muddy bottoms are used most often by these turtles.

Comments: Predicted habitats are limited to those townships with records of Musk Turtle observations.

Predicted habitat quantities:

COMMON MUSK TURTLE					**Total in ha:** 33,448
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*87*	Fresh emergent	1,246
Abandoned field	35	Heavy partial cut	*92*	Peatland	992
Blueberry field	*0*	Deciduous forest	*694*	Wet meadow	262
Grassland	1,050	Decid./Conif. forest	*1,145*	Salt aquatic bed	*3*
Crops/Ground	*201*	Conif./Decid. forest	*1,480*	Salt emergent	*0*
Developed lands		Coniferous forest	*562*	Mudflat	7
Sparse residential	*75*	**Wetlands**		Sand shore	0
Dense residential	*43*	Deciduous forested	2,112	Gravel shore	0
Urban/Industrial	*1*	Coniferous forested	2,828	Rock shore	3
Highways/Runways	*2*	Dead-forested	43	Shallow water	224
Forestlands		Decid. shrub-scrub	2,003	Open water	17,575
Clearcut	*136*	Conifer. shrub-scrub	215	**Other**	
Early regeneration	*126*	Dead shrub-scrub	0	Alpine tundra	*0*
Late regeneration	*205*	Fresh aquatic bed	0	Exposed rock/Talus	*1*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PAINTED TURTLE (*Chrysemys picta*)

Element code: RAAD0101 **ME-GAP code:** CHPP

Order: Testudines **Family:** Emydidae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: Painted Turtles are essentially aquatic, inhabiting slow moving streams and rivers, ponds (including farm ponds and reservoirs), marshes, and bogs. Water bodies with vegetation and muddy bottoms are selected. Brackish waters are occasionally inhabited by Painted Turtles, as are turbid or polluted waters. Females move up to 90 m from water to nest, depositing eggs in various soil types. Painted Turtles may move between water bodies in spring.

Specific habitats used: Permanent or semi-permanent aquatic habitats, especially those with logs and other potential resting or hiding sites, are frequented by Painted Turtles.

Comments:

Predicted habitat quantities:

PAINTED TURTLE					Total in ha: 957,543
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*2,327*	Fresh emergent	41,440
Abandoned field	3,746	Heavy partial cut	*2,615*	Peatland	33,002
Blueberry field	2,520	Deciduous forest	*10,423*	Wet meadow	11,178
Grassland	65,023	Decid./Conif. forest	*24,509*	Salt aquatic bed	3,933
Crops/Ground	13,016	Conif./Decid. forest	*66,312*	Salt emergent	2,826
Developed lands		Coniferous forest	*35,160*	Mudflat	3,295
Sparse residential	11,159	**Wetlands**		Sand shore	655
Dense residential	5,102	Deciduous forested	44,932	Gravel shore	504
Urban/Industrial	*104*	Coniferous forested	207,524	Rock shore	1,910
Highways/Runways	*60*	Dead-forested	1,622	Shallow water	8,228
Forestlands		Decid. shrub-scrub	82,618	Open water	240,634
Clearcut	*4,771*	Conifer. shrub-scrub	10,005	**Other**	
Early regeneration	*8,562*	Dead shrub-scrub	21	Alpine tundra	*34*
Late regeneration	*7,527*	Fresh aquatic bed	99	Exposed rock/Talus	*148*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SPOTTED TURTLE (*Clemmys guttata*)

Element code: RAAD0201 **ME-GAP code:** CLGU

Order: Testudines **Family:** Emydidae

Breeding range change: Stable **Game species**: No

Population level: Rare **Population trend**: Decreasing

Heritage ranks: G5 . . S3 **Federally listed**: No

State listed: T **Knowledge**: Adequate

General habitats used: Spotted Turtles inhabit shallow aquatic habitats with vegetation present, such as vernal pools (small temporary usually fishless pools), slow moving streams, ponds, marshes, scrub-shrub and forested wetlands, bogs, and roadside ditches. Water bodies must be unpolluted to be occupied by Spotted Turtles. These turtles will bask along the water's edge, hiding among vegetation. Spotted Turtles will move relatively large distances (e.g., 500 m) between ponds. In June, females will seek nest sites in sandy or loamy, well drained soil that is exposed to sunlight. Adults also may use terrestrial habitats, such as upland forests, to estivate in summer.

Specific habitats used: Temporary or permanent aquatic habitats are used by Spotted Turtles, with vegetation and nest sites nearby.

Comments: Predicted habitats are limited to those townships with Spotted Turtle observations.

Predicted habitat quantities:

SPOTTED TURTLE					**Total in ha:** 17,548
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*145*	Fresh emergent	604
Abandoned field	15	Heavy partial cut	*28*	Peatland	44
Blueberry field	*2*	Deciduous forest	*235*	Wet meadow	56
Grassland	5,172	Decid./Conif. forest	*1,655*	Salt aquatic bed	75
Crops/Ground	*111*	Conif./Decid. forest	*1,767*	Salt emergent	603
Developed lands		Coniferous forest	*491*	Mudflat	118
Sparse residential	421	**Wetlands**		Sand shore	20
Dense residential	*115*	Deciduous forested	2,477	Gravel shore	*0*
Urban/Industrial	*13*	Coniferous forested	912	Rock shore	*1*
Highways/Runways	*0*	Dead-forested	11	Shallow water	258
Forestlands		Decid. shrub-scrub	938	Open water	775
Clearcut	*123*	Conifer. shrub-scrub	96	**Other**	
Early regeneration	*135*	Dead shrub-scrub	0	Alpine tundra	*0*
Late regeneration	*110*	Fresh aquatic bed	4	Exposed rock/Talus	18

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WOOD TURTLE (*Clemmys insculpta*)

Element code: RAAD0202

ME-GAP code: CLIN

Order: Testudines

Family: Emydidae

Breeding range change: Stable

Game species: No

Population level: Uncommon

Population trend: Decreasing, from loss of habitat, pet collecting

Heritage ranks: G4 . . S4

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Wood Turtles select slow to moderately fast moving streams surrounded by forestland. In addition, larger rivers, and wetlands (bogs, meadows, and emergent and scrub-shrub wetlands) may be used. The vegetated banks of streams and rivers are used for basking and feeding. Nest sites are usually in riverine gravel banks, or pits, and sometimes road margins are used for nesting. In the summer, Wood Turtles can move away from aquatic habitats, into forests, harvested areas, and fields that are within 200 meters of streams.

Specific habitats used: Slow moving streams or rivers with sandy substrates are used most often by Wood Turtles. Wood Turtles are typically found within 200 meters of second order streams, most often in open areas.

Comments: Wood Turtles are often illegally captured for the pet trade.

Predicted habitat quantities:

WOOD TURTLE					**Total in ha:** 3,965,241
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	50,930	Fresh emergent	70,063
Abandoned field	10,738	Heavy partial cut	59,039	Peatland	45,797
Blueberry field	*4,127*	Deciduous forest	303,040	Wet meadow	16,507
Grassland	204,365	Decid./Conif. forest	489,943	Salt aquatic bed	3,595
Crops/Ground	*27,480*	Conif./Decid. forest	929,284	Salt emergent	3,727
Developed lands		Coniferous forest	476,102	Mudflat	2,508
Sparse residential	*25,343*	**Wetlands**		Sand shore	483
Dense residential	*6,324*	Deciduous forested	71,356	Gravel shore	3,412
Urban/Industrial	*209*	Coniferous forested	385,078	Rock shore	4,177
Highways/Runways	273	Dead-forested	2,723	Shallow water	12,512
Forestlands		Decid. shrub-scrub	134,868	Open water	177,320
Clearcut	58,354	Conifer. shrub-scrub	15,407	**Other**	
Early regeneration	231,572	Dead shrub-scrub	70	Alpine tundra	*104*
Late regeneration	137,689	Fresh aquatic bed	129	Exposed rock/Talus	*590*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLANDING'S TURTLE (*Emydoidea blandingii*)

Element code: RAAD0401

ME-GAP code: EMBL

Order: Testudines

Family: Emydidae

Breeding range change: Stable

Game species: No

Population level: Rare

Population trend: Decreasing, due to wetland loss

Heritage ranks: G4 . . S2

Federally listed: No

State listed: E

Knowledge: Adequate

General habitats used: Still or slow moving, shallow waters are frequented by Blanding's Turtles, including streams and rivers, natural or artificial ponds, vernal pools, wetlands, and roadside ditches. Aquatic habitats with dense vegetation are selected by Blanding's Turtles. Females will nest in well drained loam, sand, or gravel soil < 1 km from the water. Nests may be located in agricultural fields, residential yards, roadsides, or railroad right-of-ways.

Specific habitats used: Well drained loam, soil, or gravel sites near aquatic habitat are commonly used by Blanding's Turtles. Travel routes that connect water bodies may be important.

Comments: Predicted habitats limited to those townships with Blanding's Turtle observations.

Predicted habitat quantities:

BLANDING'S TURTLE					**Total in ha:** 144,142
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*1,080*	Fresh emergent	1,805
Abandoned field	2	Heavy partial cut	*161*	Peatland	440
Blueberry field	267	Deciduous forest	6,240	Wet meadow	181
Grassland	28,558	Decid./Conif. forest	37,490	Salt aquatic bed	133
Crops/Ground	1,231	Conif./Decid. forest	29,753	Salt emergent	1,106
Developed lands		Coniferous forest	8,294	Mudflat	*104*
Sparse residential	*591*	**Wetlands**		Sand shore	98
Dense residential	*516*	Deciduous forested	10,469	Gravel shore	2
Urban/Industrial	*52*	Coniferous forested	6,253	Rock shore	7
Highways/Runways	0	Dead-forested	72	Shallow water	574
Forestlands		Decid. shrub-scrub	3,069	Open water	*520*
Clearcut	1,559	Conifer. shrub-scrub	417	**Other**	
Early regeneration	2,213	Dead shrub-scrub	0	Alpine tundra	*0*
Late regeneration	*712*	Fresh aquatic bed	6	Exposed rock/Talus	166

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN BOX TURTLE (*Terrapene carolina*)

Element code: RAAD0801 **ME-GAP code:** TECA

Order: Testudines **Family:** Emydidae

Breeding range change: Stable **Game species**: No

Population level: Rare **Population trend**: Decreasing

Heritage ranks: G5 . . S1 **Federally listed**: No

State listed: E **Knowledge**: Good

General habitats used: Eastern Box Turtles are the most terrestrial of Maine's turtles, and are most common in open, dry deciduous forests. Moist deciduous and deciduous/coniferous stands are used, as are abandoned fields, pastures, and bogs. Adults will occur in or near water during warm weather, and young use water frequently. Females make nests in sandy soils, such as are found in abandoned farmlands and powerline corridors. Some Eastern Box Turtles may not establish home ranges and are transitory. Those that are not transitory tend to have very small home ranges (< 200 meters across).

Specific habitats used: Sandy soils are used for nests by Eastern Box Turtles, and cover is needed.

Comments: Predicted habitats limited to those townships with observations of Box Turtles. Records for central Maine may be a released pet.

Predicted habitat quantities:

EASTERN BOX TURTLE				**Total in ha:**	32,108
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	950	Fresh emergent	*80*
Abandoned field	50	Heavy partial cut	*172*	Peatland	166
Blueberry field	*0*	Deciduous forest	6,678	Wet meadow	50
Grassland	10,053	Decid./Conif. forest	8,426	Salt aquatic bed	31
Crops/Ground	*155*	Conif./Decid. forest	*1,799*	Salt emergent	*15*
Developed lands		Coniferous forest	*211*	Mudflat	*7*
Sparse residential	*170*	**Wetlands**		Sand shore	31
Dense residential	*168*	Deciduous forested	923	Gravel shore	*0*
Urban/Industrial	*13*	Coniferous forested	*129*	Rock shore	*0*
Highways/Runways	*0*	Dead-forested	5	Shallow water	114
Forestlands		Decid. shrub-scrub	518	Open water	*51*
Clearcut	*93*	Conifer. shrub-scrub	*13*	**Other**	
Early regeneration	452	Dead shrub-scrub	3	Alpine tundra	*0*
Late regeneration	555	Fresh aquatic bed	1	Exposed rock/Talus	*26*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RACER (*Coluber constrictor*)

Element code: RADB0701

ME-GAP code: COCC

Order: Squamata

Family: Colubridae

Breeding range change: Stable

Game species: No

Population level: Rare

Population trend: Decreasing

Heritage ranks: G5 . . S2

Federally listed: No

State listed: E

Knowledge: Adequate

General habitats used: Racers use moist and dry forests, brushlands, or rocky ledges. Racers are most likely to be found in dry, brushy habitats in Maine. Agricultural areas, orchards, powerline and railroad right-of-ways, and clearcut or regenerating stands are used by Racers. Racers are slightly arboreal, climbing low branches for escape.

Specific habitats used: No specific habitat requirements were reported for Racers.

Comments:

Predicted habitat quantities:

RACER					**Total in ha:** 291,191
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	6,891	Fresh emergent	*627*
Abandoned field	11	Heavy partial cut	1,322	Peatland	*90*
Blueberry field	546	Deciduous forest	20,763	Wet meadow	279
Grassland	64,013	Decid./Conif. forest	72,546	Salt aquatic bed	*50*
Crops/Ground	2,603	Conif./Decid. forest	58,028	Salt emergent	*153*
Developed lands		Coniferous forest	17,212	Mudflat	*55*
Sparse residential	3,088	**Wetlands**		Sand shore	494
Dense residential	5,827	Deciduous forested	12,621	Gravel shore	3
Urban/Industrial	*165*	Coniferous forested	8,326	Rock shore	16
Highways/Runways	0	Dead-forested	100	Shallow water	*198*
Forestlands		Decid. shrub-scrub	*1,139*	Open water	*475*
Clearcut	3,132	Conifer. shrub-scrub	*90*	**Other**	
Early regeneration	4,431	Dead shrub-scrub	*1*	Alpine tundra	*0*
Late regeneration	5,404	Fresh aquatic bed	*1*	Exposed rock/Talus	491

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RINGNECK SNAKE (*Diadophis punctatus*)

Element code: RADB1001 **ME-GAP code:** DIPU

Order: Squamata **Family:** Colubridae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Ringneck Snakes inhabit moist forests of many types, but they are nocturnal and secretive, and so may not be seen. These snakes will use deciduous, coniferous, and mixed forest stands, as well as early successional areas and agricultural lands. Escape cover, such as logs, rocks, stone walls, brush piles, and abandoned buildings, is regularly used by Ringneck Snakes

Specific habitats used: Moist habitats with cover available are used by Ringneck Snakes.

Comments:

Predicted habitat quantities:

RINGNECK SNAKE					**Total in ha:** 5,447,654
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	84,447	Fresh emergent	*14,456*
Abandoned field	18,488	Heavy partial cut	115,107	Peatland	*2,568*
Blueberry field	*3,192*	Deciduous forest	1,036,099	Wet meadow	*2,854*
Grassland	408,453	Decid./Conif. forest	996,485	Salt aquatic bed	*2,547*
Crops/Ground	*18,087*	Conif./Decid. forest	1,412,830	Salt emergent	*1,519*
Developed lands		Coniferous forest	564,967	Mudflat	21,315
Sparse residential	60,873	**Wetlands**		Sand shore	*270*
Dense residential	*4,981*	Deciduous forested	*16,885*	Gravel shore	*181*
Urban/Industrial	*168*	Coniferous forested	*55,149*	Rock shore	*744*
Highways/Runways	*263*	Dead-forested	*508*	Shallow water	*2,262*
Forestlands		Decid. shrub-scrub	*25,324*	Open water	*16,114*
Clearcut	*32,006*	Conifer. shrub-scrub	*2,204*	**Other**	
Early regeneration	311,750	Dead shrub-scrub	*46*	Alpine tundra	*185*
Late regeneration	213,721	Fresh aquatic bed	*21*	Exposed rock/Talus	*584*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MILK SNAKE (*Lampropeltis triangulum*)

Element code: RADB1905 **ME-GAP code:** LATR

Order: Squamata **Family:** Colubridae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Milk Snakes are most commonly found in brushlands or grasslands, taking cover under rocks, logs, or brush piles. Open deciduous, mixed, and coniferous forests are also used by milk snakes, and they may occur in bogs, meadows, or moist forests near rivers. Milk Snakes can be common near the outbuildings of farms, feeding upon rodents.

Specific habitats used: Either loose soil, or rocks, logs, or similar material (for cover) are used by Milk Snakes for nesting.

Comments:

Predicted habitat quantities:

MILK SNAKE					**Total in ha:** 1,664,190
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	22,030	Fresh emergent	*3,588*
Abandoned field	4,306	Heavy partial cut	18,534	Peatland	4,030
Blueberry field	*409*	Deciduous forest	245,050	Wet meadow	3,142
Grassland	273,150	Decid./Conif. forest	348,950	Salt aquatic bed	*799*
Crops/Ground	*8,725*	Conif./Decid. forest	386,855	Salt emergent	*514*
Developed lands		Coniferous forest	153,878	Mudflat	*598*
Sparse residential	28,329	**Wetlands**		Sand shore	*141*
Dense residential	*3,642*	Deciduous forested	31,089	Gravel shore	*8*
Urban/Industrial	*151*	Coniferous forested	*8,782*	Rock shore	*205*
Highways/Runways	294	Dead-forested	*146*	Shallow water	*797*
Forestlands		Decid. shrub-scrub	21,621	Open water	*4,173*
Clearcut	18,864	Conifer. shrub-scrub	2,531	**Other**	
Early regeneration	24,153	Dead shrub-scrub	36	Alpine tundra	*0*
Late regeneration	42,860	Fresh aquatic bed	*13*	Exposed rock/Talus	1,797

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN WATER SNAKE (*Nerodia sipedon*)

Element code: RADB2206 **ME-GAP code:** NESI

Order: Squamata **Family:** Colubridae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Northern Water Snakes inhabit permanent watercourses or water bodies, and the surrounding shoreline. Slow moving streams or small ponds are selected habitats, where water snakes may be found basking in branches or on rocks. Other water bodies are used, including slow moving rivers, beaver flowages, forested wetlands, marshes, and bogs. These snakes are quite aquatic, but will use terrestrial sites near (< 6 m) water. Northern Water Snakes do not occur in polluted water.

Specific habitats used: Permanent aquatic habitats with overhanging branches or nearby boulders are frequented, for basking, by Northern Water Snakes.

Comments:

Predicted habitat quantities:

NORTHERN WATER SNAKE					Total in ha: 159,374
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*619*	Fresh emergent	9,620
Abandoned field	*262*	Heavy partial cut	*544*	Peatland	2,625
Blueberry field	*53*	Deciduous forest	*2,941*	Wet meadow	2,412
Grassland	*7,732*	Decid./Conif. forest	*7,839*	Salt aquatic bed	*148*
Crops/Ground	*1,469*	Conif./Decid. forest	*12,907*	Salt emergent	2,229
Developed lands		Coniferous forest	*6,063*	Mudflat	*126*
Sparse residential	*757*	**Wetlands**		Sand shore	305
Dense residential	*598*	Deciduous forested	20,086	Gravel shore	49
Urban/Industrial	*53*	Coniferous forested	*1,844*	Rock shore	248
Highways/Runways	*6*	Dead-forested	458	Shallow water	1,996
Forestlands		Decid. shrub-scrub	14,612	Open water	55,957
Clearcut	*916*	Conifer. shrub-scrub	1,827	**Other**	
Early regeneration	*661*	Dead shrub-scrub	1	Alpine tundra	*0*
Late regeneration	*1,359*	Fresh aquatic bed	32	Exposed rock/Talus	*18*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SMOOTH GREEN SNAKE (*Liochlorophis vernalis*)

Element code: RADB4701 **ME-GAP code:** OPVE

Order: Squamata **Family:** Colubridae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Smooth Green Snakes are most common in grassy fields or upland meadows, but may also be located in residential lawns or gardens, open deciduous stands, brushy areas, marshes, or bogs. In Maine, abandoned farmlands are important habitats for Smooth Green Snakes. Females will lay eggs in nests that are dug in loose soil, or under rocks, logs, or other cover.

Specific habitats used: Open grassy areas are frequently used by Smooth Green Snakes.

Comments:

Predicted habitat quantities:

SMOOTH GREEN SNAKE					**Total in ha:** 1,855,307
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*9,389*	Fresh emergent	34,501
Abandoned field	14,431	Heavy partial cut	44,194	Peatland	*1,033*
Blueberry field	11,572	Deciduous forest	480,328	Wet meadow	9,334
Grassland	336,553	Decid./Conif. forest	489,996	Salt aquatic bed	*591*
Crops/Ground	37,726	Conif./Decid. forest	*109,113*	Salt emergent	*411*
Developed lands		Coniferous forest	*17,805*	Mudflat	*478*
Sparse residential	41,801	**Wetlands**		Sand shore	*95*
Dense residential	*3,539*	Deciduous forested	46,978	Gravel shore	*23*
Urban/Industrial	*135*	Coniferous forested	*10,724*	Rock shore	*176*
Highways/Runways	*228*	Dead-forested	*190*	Shallow water	*1,083*
Forestlands		Decid. shrub-scrub	61,511	Open water	*6,329*
Clearcut	44,203	Conifer. shrub-scrub	6,492	**Other**	
Early regeneration	*17,494*	Dead shrub-scrub	49	Alpine tundra	*0*
Late regeneration	*16,418*	Fresh aquatic bed	*17*	Exposed rock/Talus	*372*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BROWN SNAKE (*Storeria dekayi*)

Element code: RADB3401 **ME-GAP code:** STDE

Order: Squamata **Family:** Colubridae

Breeding range change: Stable **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G5 . . S3 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Brown Snakes are habitat generalists, occurring in moist or dry forests of many types, bogs, marshes, forested wetlands, residential areas, parks, cemeteries, and agricultural lands. Deciduous forests are selected over coniferous forests. In appropriate habitats, Brown Snakes may be located under logs, rocks, or brush piles. If soils are loose (or mammal burrows are present, for example), Brown Snakes will move underground. Brown Snakes are most active at night.

Specific habitats used: No specific habitat requirements were found reported for Brown Snakes.

Comments:

Predicted habitat quantities:

BROWN SNAKE					**Total in ha:** 404,249
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	6,701	Fresh emergent	4,089
Abandoned field	136	Heavy partial cut	1,428	Peatland	667
Blueberry field	*67*	Deciduous forest	21,561	Wet meadow	421
Grassland	87,116	Decid./Conif. forest	89,187	Salt aquatic bed	*248*
Crops/Ground	5,408	Conif./Decid. forest	86,260	Salt emergent	1,234
Developed lands		Coniferous forest	36,389	Mudflat	1,274
Sparse residential	6,231	**Wetlands**		Sand shore	*63*
Dense residential	12,627	Deciduous forested	15,136	Gravel shore	*0*
Urban/Industrial	1,407	Coniferous forested	*2,334*	Rock shore	*76*
Highways/Runways	3	Dead-forested	144	Shallow water	*441*
Forestlands		Decid. shrub-scrub	5,872	Open water	*1,580*
Clearcut	3,657	Conifer. shrub-scrub	551	**Other**	
Early regeneration	4,835	Dead shrub-scrub	0	Alpine tundra	*0*
Late regeneration	6,737	Fresh aquatic bed	*6*	Exposed rock/Talus	*363*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

REDBELLY SNAKE (*Storeria occipitomaculata*)

Element code: RADB3403 **ME-GAP code:** STOC

Order: Squamata **Family:** Colubridae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Redbelly snakes are habitat generalists, occurring in moist or dry forests, harvested and regenerating areas, bogs, pastures, marshes, agricultural areas, light residential areas, and sometimes in aquatic habitats. However, they are most common in damp forested areas. In these habitats, Redbelly Snakes may be located under logs, rocks, boards, wood piles, or within brush piles.

Specific habitats used: Redbelly snakes regularly use various forms of ground cover.

Comments:

Predicted habitat quantities:

REDBELLY SNAKE					**Total in ha:** 6,268,741
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	94,761	Fresh emergent	62,156
Abandoned field	18,217	Heavy partial cut	128,408	Peatland	40,081
Blueberry field	*3,438*	Deciduous forest	1,055,684	Wet meadow	14,914
Grassland	401,506	Decid./Conif. forest	1,023,748	Salt aquatic bed	5,149
Crops/Ground	*18,709*	Conif./Decid. forest	1,451,050	Salt emergent	2,511
Developed lands		Coniferous forest	629,077	Mudflat	*1,197*
Sparse residential	60,233	**Wetlands**		Sand shore	*245*
Dense residential	*5,247*	Deciduous forested	66,836	Gravel shore	*285*
Urban/Industrial	*166*	Coniferous forested	297,580	Rock shore	*715*
Highways/Runways	597	Dead-forested	2,283	Shallow water	11,594
Forestlands		Decid. shrub-scrub	114,845	Open water	*20,750*
Clearcut	109,020	Conifer. shrub-scrub	13,537	**Other**	
Early regeneration	371,859	Dead shrub-scrub	110	Alpine tundra	*179*
Late regeneration	241,337	Fresh aquatic bed	117	Exposed rock/Talus	*599*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN RIBBON SNAKE (*Thamnophis sauritus*)

Element code: RADB3612 **ME-GAP code:** THSS

Order: Squamata **Family:** Colubridae

Breeding range change: Stable **Game species**: No

Population level: Rare **Population trend**: Unknown

Heritage ranks: G5 . . S3 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Eastern Ribbon Snakes are semiaquatic animals that use a variety of habitats, including nonforested and forested wetlands, bogs, streams, and ponds. Ribbon snakes will take cover in brush next to these aquatic habitats, or may move underground. Eastern Ribbon Snakes may also occur in damp deciduous or pine forests.

Specific habitats used: Aquatic habitats with nearby vegetation are used by Eastern Ribbon Snakes.

Comments:

Predicted habitat quantities:

EASTERN RIBBON SNAKE					**Total in ha:** 313,849
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*1,285*	Fresh emergent	13,524
Abandoned field	2,372	Heavy partial cut	*1,355*	Peatland	4,271
Blueberry field	*59*	Deciduous forest	*6,963*	Wet meadow	3,331
Grassland	116,439	Decid./Conif. forest	*17,751*	Salt aquatic bed	*169*
Crops/Ground	*2,935*	Conif./Decid. forest	*22,419*	Salt emergent	2,884
Developed lands		Coniferous forest	*7,115*	Mudflat	1,611
Sparse residential	*2,612*	**Wetlands**		Sand shore	*43*
Dense residential	*1,343*	Deciduous forested	28,987	Gravel shore	*4*
Urban/Industrial	*68*	Coniferous forested	37,312	Rock shore	*51*
Highways/Runways	*24*	Dead-forested	623	Shallow water	2,464
Forestlands		Decid. shrub-scrub	23,047	Open water	*1,863*
Clearcut	*2,476*	Conifer. shrub-scrub	2,776	**Other**	
Early regeneration	*2,402*	Dead shrub-scrub	21	Alpine tundra	*0*
Late regeneration	*3,076*	Fresh aquatic bed	43	Exposed rock/Talus	*131*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON GARTER SNAKE (*Thamnophis sirtalis*)

Element code: RADB3613 **ME-GAP code:** THSI

Order: Squamata **Family:** Colubridae

Breeding range change: Stable **Game species**: No

Population level: Abundant **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: Common Garter Snakes use a broad range of habitats, including forestlands, harvested areas, agricultural fields, wetlands, residential areas, or the edges of aquatic areas. Common Garter Snakes are most common in moist habitats that support high populations of earthworms (a primary food), such as moist deciduous forests, or abandoned farmland. In suitable habitats, garter snakes may be located under rocks, logs, wood piles, or brush piles.

Specific habitats used: Common Garter Snakes regularly use rocks, logs, and similar cover as escape habitat.

Comments:

Predicted habitat quantities:

COMMON GARTER SNAKE					Total in ha: 7,790,896
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	112,631	Fresh emergent	68,725
Abandoned field	19,150	Heavy partial cut	151,341	Peatland	45,810
Blueberry field	13,048	Deciduous forest	1,271,273	Wet meadow	15,475
Grassland	446,178	Decid./Conif. forest	1,328,796	Salt aquatic bed	4,504
Crops/Ground	*58,685*	Conif./Decid. forest	1,762,519	Salt emergent	1,483
Developed lands		Coniferous forest	773,885	Mudflat	2,425
Sparse residential	64,120	**Wetlands**		Sand shore	495
Dense residential	*12,086*	Deciduous forested	70,456	Gravel shore	2,658
Urban/Industrial	*369*	Coniferous forested	383,395	Rock shore	3,117
Highways/Runways	559	Dead-forested	2,652	Shallow water	14,137
Forestlands		Decid. shrub-scrub	131,908	Open water	*71,222*
Clearcut	124,167	Conifer. shrub-scrub	14,906	**Other**	
Early regeneration	528,706	Dead shrub-scrub	109	Alpine tundra	*457*
Late regeneration	288,095	Fresh aquatic bed	122	Exposed rock/Talus	*1,232*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

VIRGINIA OPOSSUM (*Didelphis virginiana*)

Element code: MAAA0101 **ME-GAP code:** DIVI

Order: Didelphimorphia **Family:** Didelphidae

Breeding range change: Expanding **Game species**: Yes

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G5 . . S4 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Virginia Opossums use a variety of forestlands and wetlands, as well as the edges of agricultural lands adjacent to forests or woodlots. Opossums readily use habitats close to built-up areas, including low density residential areas at night. They are most commonly found near waterways and wetlands in forestlands, especially in deciduous and mixed forests.

Specific habitats used: Being at the northern edge of their range in Maine, ground dens and hollow trees are needed for protection from severe winter weather. Regardless, many specimens from Maine show evidence of frost-bite, such as missing the tips of ears or tails.

Comments: Opossums are relatively new to Maine, and their range continues to move slowly northward .

Predicted habitat quantities:

VIRGINIA OPOSSUM					**Total in ha:** 260,588
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	4,993	Fresh emergent	2,782
Abandoned field	0	Heavy partial cut	905	Peatland	587
Blueberry field	*50*	Deciduous forest	14,283	Wet meadow	288
Grassland	53,746	Decid./Conif. forest	63,897	Salt aquatic bed	*80*
Crops/Ground	2,281	Conif./Decid. forest	48,532	Salt emergent	666
Developed lands		Coniferous forest	17,856	Mudflat	361
Sparse residential	3,270	**Wetlands**		Sand shore	103
Dense residential	7,800	Deciduous forested	13,186	Gravel shore	4
Urban/Industrial	*245*	Coniferous forested	7,803	Rock shore	16
Highways/Runways	*0*	Dead-forested	79	Shallow water	*270*
Forestlands		Decid. shrub-scrub	4,787	Open water	*778*
Clearcut	2,732	Conifer. shrub-scrub	463	**Other**	
Early regeneration	3,611	Dead shrub-scrub	0	Alpine tundra	*0*
Late regeneration	3,898	Fresh aquatic bed	*1*	Exposed rock/Talus	*235*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MASKED SHREW (*Sorex cinereus*)

Element code: MABA0101 **ME-GAP code:** SOCI

Order: Insectivora **Family:** Soricidae

Breeding range change: Stable **Game species**: No

Population level: Abundant **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: Masked Shrews occur within most habitat types in Maine. They are most common in moist sites within deciduous or coniferous stands, especially near streams, ponds, marshes, or bogs. However, Masked Shrews will occur in open areas if the humidity is high, and are relatively common within clearcuts. Dry sites or those that are barren are avoided.

Specific habitats used: High humidity at the microsite, with cover available.

Comments:

Predicted habitat quantities:

MASKED SHREW					Total in ha: 7,869,150
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	112,929	Fresh emergent	68,700
Abandoned field	19,494	Heavy partial cut	152,530	Peatland	45,765
Blueberry field	12,983	Deciduous forest	1,273,233	Wet meadow	15,441
Grassland	458,437	Decid./Conif. forest	1,333,450	Salt aquatic bed	*3,510*
Crops/Ground	106,880	Conif./Decid. forest	1,766,849	Salt emergent	1,467
Developed lands		Coniferous forest	773,135	Mudflat	2,385
Sparse residential	65,506	**Wetlands**		Sand shore	471
Dense residential	*12,293*	Deciduous forested	71,300	Gravel shore	2,642
Urban/Industrial	*381*	Coniferous forested	386,198	Rock shore	3,040
Highways/Runways	*484*	Dead-forested	2,688	Shallow water	*10,371*
Forestlands		Decid. shrub-scrub	132,480	Open water	*71,720*
Clearcut	125,651	Conifer. shrub-scrub	15,017	**Other**	
Early regeneration	530,752	Dead shrub-scrub	107	Alpine tundra	*448*
Late regeneration	289,136	Fresh aquatic bed	*82*	Exposed rock/Talus	*1,197*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WATER SHREW (*Sorex palustris*)

Element code: MABA0115

ME-GAP code: SOPA

Order: Insectivora

Family: Soricidae

Breeding range change: Unknown

Game species: No

Population level: Uncommon

Population trend: Unknown

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Water Shrews are semi-aquatic, selecting wooded or rocky areas around fast- flowing streams. Stone retaining walls along streams can provide cover. Water Shrews also will occur along the edges of ponds, rivers, and within bogs and swamps. Water Shrews occasionally have been taken in meadows, clearcuts, and burned areas, but never far from water.

Specific habitats used: Dense cover near water is regularly used by Water Shrews.

Comments:

Predicted habitat quantities:

WATER SHREW					**Total in ha:** 841,192
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*6,341*	Fresh emergent	38,657
Abandoned field	*1,622*	Heavy partial cut	*7,586*	Peatland	36,811
Blueberry field	*879*	Deciduous forest	*23,660*	Wet meadow	9,262
Grassland	*22,213*	Decid./Conif. forest	*52,265*	Salt aquatic bed	*167*
Crops/Ground	*4,785*	Conif./Decid. forest	*127,278*	Salt emergent	1,818
Developed lands		Coniferous forest	*74,877*	Mudflat	823
Sparse residential	*3,378*	**Wetlands**		Sand shore	105
Dense residential	*1,194*	Deciduous forested	35,975	Gravel shore	*313*
Urban/Industrial	*49*	Coniferous forested	219,714	Rock shore	*144*
Highways/Runways	*50*	Dead-forested	1,256	Shallow water	6,828
Forestlands		Decid. shrub-scrub	79,176	Open water	*14,881*
Clearcut	*9,923*	Conifer. shrub-scrub	9,662	**Other**	
Early regeneration	*32,129*	Dead shrub-scrub	18	Alpine tundra	*44*
Late regeneration	*17,129*	Fresh aquatic bed	66	Exposed rock/Talus	*113*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SMOKY SHREW (*Sorex fumeus*)

Element code: MABA0118 **ME-GAP code:** SOFU

Order: Insectivora **Family:** Soricidae

Breeding range change: Unknown **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Smoky Shrews inhabit moist forestlands, being most common in deciduous stands. Smokey Shrews typically occur on the banks of streams or other water bodies, taking cover amongst rocks, logs, or stumps. Areas with high humidity and dense ground cover (e.g., moss-covered stream banks, thick moist leaf mold) are selected. Specimens are occasionally taken in harvested areas.

Specific habitats used: The microsite must be moist and humid, with cover available.

Comments:

Predicted habitat quantities:

SMOKY SHREW					**Total in ha:** 7,211,974
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	109,079	Fresh emergent	66,445
Abandoned field	15,972	Heavy partial cut	147,407	Peatland	45,160
Blueberry field	*6,377*	Deciduous forest	1,232,886	Wet meadow	14,787
Grassland	*189,635*	Decid./Conif. forest	1,268,028	Salt aquatic bed	*2,720*
Crops/Ground	*34,747*	Conif./Decid. forest	1,701,791	Salt emergent	1,598
Developed lands		Coniferous forest	756,312	Mudflat	*1,363*
Sparse residential	*32,747*	**Wetlands**		Sand shore	*253*
Dense residential	*6,311*	Deciduous forested	65,458	Gravel shore	*787*
Urban/Industrial	*80*	Coniferous forested	378,848	Rock shore	*1,588*
Highways/Runways	*249*	Dead-forested	2,586	Shallow water	13,133
Forestlands		Decid. shrub-scrub	126,258	Open water	*62,922*
Clearcut	118,305	Conifer. shrub-scrub	14,306	**Other**	
Early regeneration	513,648	Dead shrub-scrub	83	Alpine tundra	*469*
Late regeneration	278,819	Fresh aquatic bed	*73*	Exposed rock/Talus	*743*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

LONG-TAILED SHREW (*Sorex dispar*)

Element code: MABA0121 **ME-GAP code:** SODI

Order: Insectivora **Family:** Soricidae

Breeding range change: Unknown **Game species**: No

Population level: Rare **Population trend**: Unknown

Heritage ranks: G4 . . S4 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Long-tailed Shrews inhabit humid, moss-covered talus slopes within coniferous, or sometimes deciduous, forests. Moss-covered logs, rocky outcroppings, or ledges are used for cover. Thick leaf mold or tangle roots may be occupied by Long-tailed Shrews.

Specific habitats used: Humid conditions, with many crevices for cover (e.g., talus slopes, rock or log piles).

Comments:

Predicted habitat quantities:

LONG-TAILED SHREW					Total in ha: 1,604,759
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	23,889	Fresh emergent	*3,057*
Abandoned field	*896*	Heavy partial cut	*16,381*	Peatland	*654*
Blueberry field	*0*	Deciduous forest	424,006	Wet meadow	*579*
Grassland	*10,911*	Decid./Conif. forest	318,498	Salt aquatic bed	*28*
Crops/Ground	*1,239*	Conif./Decid. forest	368,309	Salt emergent	*0*
Developed lands		Coniferous forest	150,483	Mudflat	*5*
Sparse residential	*1,244*	**Wetlands**		Sand shore	*0*
Dense residential	*113*	Deciduous forested	15,415	Gravel shore	614
Urban/Industrial	*0*	Coniferous forested	67,163	Rock shore	844
Highways/Runways	57	Dead-forested	488	Shallow water	*612*
Forestlands		Decid. shrub-scrub	24,105	Open water	*2,220*
Clearcut	*7,761*	Conifer. shrub-scrub	3,719	**Other**	
Early regeneration	104,942	Dead shrub-scrub	46	Alpine tundra	*66*
Late regeneration	55,723	Fresh aquatic bed	*2*	Exposed rock/Talus	687

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PYGMY SHREW (*Sorex hoyi*)

Element code: MABA0125 **ME-GAP code:** SOHO

Order: Insectivora **Family:** Soricidae

Breeding range change: Unknown **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Pygmy Shrews have been collected in a variety of habitats, usually associated with water (except in humid habitats). This species will select grassy clearings within moist forest stands. Pygmy Shrews have been collected near and within swamps, on the borders of grasslands and meadows, and within clearcuts. Wetland edges may be occupied by these shrews.

Specific habitats used: Microsites are humid, with cover (e.g., logs or stumps, leaf litter) available.

Comments:

Predicted habitat quantities:

PYGMY SHREW					**Total in ha:** 7,511,547
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	108,797	Fresh emergent	68,089
Abandoned field	19,178	Heavy partial cut	152,047	Peatland	46,212
Blueberry field	*3,738*	Deciduous forest	1,266,451	Wet meadow	15,720
Grassland	411,278	Decid./Conif. forest	1,289,767	Salt aquatic bed	*1,933*
Crops/Ground	*28,247*	Conif./Decid. forest	1,738,688	Salt emergent	*732*
Developed lands		Coniferous forest	765,643	Mudflat	3,430
Sparse residential	*24,203*	**Wetlands**		Sand shore	628
Dense residential	*4,154*	Deciduous forested	61,575	Gravel shore	*365*
Urban/Industrial	*41*	Coniferous forested	381,955	Rock shore	*779*
Highways/Runways	*184*	Dead-forested	2,637	Shallow water	*4,298*
Forestlands		Decid. shrub-scrub	132,360	Open water	*24,493*
Clearcut	123,199	Conifer. shrub-scrub	15,113	**Other**	
Early regeneration	528,817	Dead shrub-scrub	118	Alpine tundra	*172*
Late regeneration	286,002	Fresh aquatic bed	*33*	Exposed rock/Talus	*471*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN SHORT-TAILED SHREW (*Blarina brevicauda*)

Element code: MABA0301 **ME-GAP code:** BLBR

Order: Insectivora **Family:** Soricidae

Breeding range change: Stable **Game species**: No

Population level: Abundant **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Northern Short-tailed Shrews use most forests of all types and ages, along with grasslands and wetlands. They are somewhat more common in deciduous than coniferous stands, but readily use mossy areas in coniferous forests. Northern Short-tailed Shrews are less common, or absent, in dry sites, such as recent clearcuts lacking ground cover.

Specific habitats used: High humidity with leaf litter for cover.

Comments: Interestingly, Northern Short-tailed Shrews are the only North American mammal with venom! A bite from this shrew can cause pain, itching, and swelling, but is not really dangerous.

Predicted habitat quantities:

NORTHERN SHORT-TAILED SHREW					Total in ha: 7,714,837
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	111,821	Fresh emergent	68,241
Abandoned field	18,786	Heavy partial cut	148,211	Peatland	45,038
Blueberry field	*7,499*	Deciduous forest	1,265,458	Wet meadow	15,197
Grassland	441,165	Decid./Conif. forest	1,317,922	Salt aquatic bed	*3,393*
Crops/Ground	*56,642*	Conif./Decid. forest	1,750,804	Salt emergent	*1,274*
Developed lands		Coniferous forest	769,275	Mudflat	2,326
Sparse residential	63,048	**Wetlands**		Sand shore	*347*
Dense residential	*11,508*	Deciduous forested	69,330	Gravel shore	*799*
Urban/Industrial	*360*	Coniferous forested	382,237	Rock shore	*1,722*
Highways/Runways	*429*	Dead-forested	2,601	Shallow water	*10,133*
Forestlands		Decid. shrub-scrub	130,019	Open water	*67,735*
Clearcut	122,336	Conifer. shrub-scrub	14,862	**Other**	
Early regeneration	524,816	Dead shrub-scrub	109	Alpine tundra	1,898
Late regeneration	286,071	Fresh aquatic bed	*78*	Exposed rock/Talus	*1,347*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

STAR-NOSED MOLE (*Condylura cristata*)

Element code: MABB0501 **ME-GAP code:** COCR

Order: Insectivora **Family:** Talpidae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Star-nosed Moles inhabit poorly drained soils within swamps, meadows, bogs, or in forests. Wet patches within drier forest stands can be used. Star-nosed Moles have been collected along stream and river banks, and along the shores of ponds. This species of mole is quite aquatic, with small fish composing a portion of it's diet.

Specific habitats used: Moderate to poorly drained, deep soils are used by Star-nosed Moles.

Comments: Star-nosed Moles are aptly named, with 22 fleshy tentacles protruding from their noses.

Predicted habitat quantities:

STAR-NOSED MOLE					**Total in ha:** 3,744,312
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	49,868	Fresh emergent	66,488
Abandoned field	10,876	Heavy partial cut	*44,636*	Peatland	44,447
Blueberry field	*4,329*	Deciduous forest	300,713	Wet meadow	14,965
Grassland	202,826	Decid./Conif. forest	480,671	Salt aquatic bed	*2,778*
Crops/Ground	*26,227*	Conif./Decid. forest	908,717	Salt emergent	1,823
Developed lands		Coniferous forest	470,760	Mudflat	2,266
Sparse residential	*24,726*	**Wetlands**		Sand shore	429
Dense residential	*6,000*	Deciduous forested	67,634	Gravel shore	*787*
Urban/Industrial	*203*	Coniferous forested	370,697	Rock shore	*1,656*
Highways/Runways	*184*	Dead-forested	2,556	Shallow water	13,830
Forestlands		Decid. shrub-scrub	127,991	Open water	*64,634*
Clearcut	*41,451*	Conifer. shrub-scrub	14,582	**Other**	
Early regeneration	235,449	Dead shrub-scrub	62	Alpine tundra	*64*
Late regeneration	138,349	Fresh aquatic bed	*84*	Exposed rock/Talus	*556*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

HAIRY-TAILED MOLE (*Parascalops breweri*)

Element code: MABB0301 **ME-GAP code:** PABR

Order: Insectivora **Family:** Talpidae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Hairy-tailed Moles inhabit loosely-packed, well drained soils in forests, meadows, or pastures. Soil packing and wetness appear to control habitat selection, whereas rockiness does not. Areas of heavy clay or areas with dry, hard soils are avoided, as are areas devoid of vegetation. These moles may be more common at higher elevation than near sea-level.

Specific habitats used: Well drained, friable soils, with some vegetation are used by Hairy-tailed Moles.

Comments: A mole inhabiting a lawn in Maine is probably a Hairy-tailed Mole. The other mole of our state, the Star-nosed Mole, inhabits sites that are wetter than most lawns.

Predicted habitat quantities:

HAIRY-TAILED MOLE					**Total in ha:** 6,968,455
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	106,931	Fresh emergent	*31,750*
Abandoned field	17,206	Heavy partial cut	144,638	Peatland	*8,454*
Blueberry field	*6,690*	Deciduous forest	1,253,469	Wet meadow	*6,533*
Grassland	417,665	Decid./Conif. forest	1,286,575	Salt aquatic bed	*3,039*
Crops/Ground	*51,228*	Conif./Decid. forest	1,652,369	Salt emergent	*1,104*
Developed lands		Coniferous forest	705,438	Mudflat	*1,475*
Sparse residential	*42,801*	**Wetlands**		Sand shore	413
Dense residential	*10,137*	Deciduous forested	*36,038*	Gravel shore	*517*
Urban/Industrial	*272*	Coniferous forested	*169,327*	Rock shore	*1,575*
Highways/Runways	388	Dead-forested	*1,486*	Shallow water	*7,174*
Forestlands		Decid. shrub-scrub	*58,606*	Open water	*54,085*
Clearcut	113,841	Conifer. shrub-scrub	*5,525*	**Other**	
Early regeneration	497,709	Dead shrub-scrub	*82*	Alpine tundra	*449*
Late regeneration	272,290	Fresh aquatic bed	*61*	Exposed rock/Talus	*1,115*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

LITTLE BROWN MYOTIS (*Myotis lucifugus*)

Element code: MACC0101 **ME-GAP code:** MYLU

Order: Chiroptera **Family:** Vespertilionidae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: After hibernating through winter, female Little Brown Myotis form maternal colonies in attics, barns, slash piles, or other warm secluded places. Males roost in less protected sites, such as under flaking bark or within rock crevices. In evening and at dawn, Little Brown Myotis hawk insects over ponds, along the banks of rivers, through open woodlands, and along residential streets; in general, many habitat types are used while feeding.

Specific habitats used: Hibernicula (or wintering sites) generally remaining 0 to 5 EC and about 80% humidity through the winter, such as some caves, are used as wintering roosts. It is still unknown if this species winters in Maine.

Comments: Most bats seen roosting on, or in buildings are Little Brown Myotis or their larger relatives, Big Brown Bats. Because bats feed in the air over and along the edges of many habitat types, much of Maine is shown as habitat.

Predicted habitat quantities:

LITTLE BROWN MYOTIS					**Total in ha:** 8,347,239
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	111,184	Fresh emergent	70,532
Abandoned field	19,626	Heavy partial cut	150,449	Peatland	46,725
Blueberry field	13,060	Deciduous forest	1,276,842	Wet meadow	16,752
Grassland	463,219	Decid./Conif. forest	1,338,879	Salt aquatic bed	7,163
Crops/Ground	109,650	Conif./Decid. forest	1,776,310	Salt emergent	7,821
Developed lands		Coniferous forest	777,198	Mudflat	17,817
Sparse residential	66,005	**Wetlands**		Sand shore	984
Dense residential	34,657	Deciduous forested	73,046	Gravel shore	3,488
Urban/Industrial	1,488	Coniferous forested	387,625	Rock shore	4,440
Highways/Runways	*666*	Dead-forested	2,749	Shallow water	14,241
Forestlands		Decid. shrub-scrub	137,034	Open water	462,684
Clearcut	124,320	Conifer. shrub-scrub	15,582	**Other**	
Early regeneration	526,358	Dead shrub-scrub	122	Alpine tundra	*607*
Late regeneration	283,545	Fresh aquatic bed	131	Exposed rock/Talus	4,244

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN MYOTIS (*Myotis septentrionalis*)

Element code: MACC0115 **ME-GAP code:** MYKE

Order: Chiroptera **Family:** Vespertilionidae

Breeding range change: Stable **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G4 . . S4 **Federally listed**: No

State listed: No **Knowledge**: Best guess

General habitats used: Following winter hibernation in caves and mines, Northern Myotis form small maternal colonies and roost in warm, secluded places such as attics, hollow trees, or under flaking tree bark. Feeding occurs in forested areas - typically stands with more complete canopies than those used by little brown myotis. Northern Myotis will hawk insects over water, and along the edges of meadows or agricultural areas.

Specific habitats used: Hibernicula near 5 EC with high humidity and little wind are used by Northern Myotis.

Comments: Northern Myotis are also called Northern Long-eared Bats, and until several years ago were known as Keen's Myotis. Aerial feeders like bats forage over and along the edges of many habitats, resulting in much of Maine shown as habitat.

Predicted habitat quantities:

NORTHERN MYOTIS					**Total in ha:** 8,264,529
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	111,455	Fresh emergent	69,606
Abandoned field	18,735	Heavy partial cut	149,352	Peatland	46,322
Blueberry field	*7,426*	Deciduous forest	1,263,184	Wet meadow	16,578
Grassland	454,342	Decid./Conif. forest	1,327,023	Salt aquatic bed	*5,546*
Crops/Ground	107,933	Conif./Decid. forest	1,771,802	Salt emergent	7,729
Developed lands		Coniferous forest	781,281	Mudflat	17,166
Sparse residential	64,633	**Wetlands**		Sand shore	918
Dense residential	*13,044*	Deciduous forested	71,695	Gravel shore	3,495
Urban/Industrial	*444*	Coniferous forested	384,004	Rock shore	4,389
Highways/Runways	*463*	Dead-forested	2,692	Shallow water	14,083
Forestlands		Decid. shrub-scrub	134,307	Open water	461,637
Clearcut	122,149	Conifer. shrub-scrub	15,310	**Other**	
Early regeneration	526,021	Dead shrub-scrub	117	Alpine tundra	*609*
Late regeneration	284,914	Fresh aquatic bed	*95*	Exposed rock/Talus	4,031

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN SMALL-FOOTED MYOTIS (*Myotis leibii*)

Element code: MACC0113 **ME-GAP code:** MYLE

Order: Chiroptera **Family:** Vespertilionidae

Breeding range change: Unknown **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G3 . . S1S2 **Federally listed**: No

State listed: No **Knowledge**: Best guess

General habitats used: Eastern Small-footed Myotis may hibernate within caves that are colder and less protected than other New England cave bats (such as the Big Brown Bat, Northern Myotis, and perhaps the Little Brown Myotis). After hibernation, Eastern Small-footed Myotis will roost and form nursing colonies in trees, buildings, caves, or mines. The feeding habitats of this species are not well known, but they are reported to select coniferous over deciduous stands to hawk over and within.

Specific habitats used: Caves or mines are used for winter hibernation (termed "hibernicula").

Comments: Little is known about this species' distribution in Maine; the range essentially connects known hibernicula.

Predicted habitat quantities:

EASTERN SMALL-FOOTED MYOTIS					Total in ha:	500,509
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	6,261	Fresh emergent		2,266
Abandoned field	1,069	Heavy partial cut	10,589	Peatland		437
Blueberry field	*15*	Deciduous forest	137,575	Wet meadow		760
Grassland	*15,030*	Decid./Conif. forest	107,591	Salt aquatic bed		32
Crops/Ground	*1,207*	Conif./Decid. forest	97,616	Salt emergent		1
Developed lands		Coniferous forest	38,601	Mudflat		3
Sparse residential	4,102	**Wetlands**		Sand shore		7
Dense residential	3,492	Deciduous forested	6,768	Gravel shore		43
Urban/Industrial	*0*	Coniferous forested	10,988	Rock shore		6
Highways/Runways	*35*	Dead-forested	111	Shallow water		451
Forestlands		Decid. shrub-scrub	4,858	Open water		26,682
Clearcut	5,737	Conifer. shrub-scrub	735	**Other**		
Early regeneration	9,254	Dead shrub-scrub	26	Alpine tundra		*0*
Late regeneration	8,094	Fresh aquatic bed	2	Exposed rock/Talus		64

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SILVER-HAIRED BAT (*Lasionycteris noctivagans*)

Element code: MACC0201 **ME-GAP code:** LANO

Order: Chiroptera **Family:** Vespertilionidae

Breeding range change: Unknown **Game species**: No

Population level: Rare **Population trend**: Unknown

Heritage ranks: G5 . . SU **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: The Silver-haired Bat is one of the "tree bats" of New England, inhabiting woodland areas near water bodies. These bats feed over streams, rivers, or lakes, and along the edges of forest and wetland openings. In the winter, Silver-haired Bats hibernate south of New England, but will roost during the breeding season in tree canopies, under flaking bark, or in abandoned buildings.

Specific habitats used: Water bodies bordered by forest are used as foraging areas.

Comments: The Silver-Haired Bat is the most closely associated of all Maine bats with water, although the other species of bats that breed in the state do occur, to a lesser degree, over water when feeding.

Predicted habitat quantities:

SILVER-HAIRED BAT					**Total in ha:** 4,209,302
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*40,357*	Fresh emergent	65,139
Abandoned field	11,500	Heavy partial cut	59,630	Peatland	44,045
Blueberry field	*4,097*	Deciduous forest	385,809	Wet meadow	15,678
Grassland	241,939	Decid./Conif. forest	569,217	Salt aquatic bed	3,724
Crops/Ground	*30,160*	Conif./Decid. forest	1,027,242	Salt emergent	3,988
Developed lands		Coniferous forest	513,373	Mudflat	2,756
Sparse residential	37,620	**Wetlands**		Sand shore	544
Dense residential	*7,565*	Deciduous forested	67,213	Gravel shore	3,366
Urban/Industrial	*298*	Coniferous forested	355,153	Rock shore	4,098
Highways/Runways	*287*	Dead-forested	2,491	Shallow water	13,140
Forestlands		Decid. shrub-scrub	125,676	Open water	274,515
Clearcut	59,128	Conifer. shrub-scrub	14,595	**Other**	
Early regeneration	*123,581*	Dead shrub-scrub	76	Alpine tundra	*181*
Late regeneration	*99,538*	Fresh aquatic bed	129	Exposed rock/Talus	1,456

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN PIPISTRELLE (*Pipistrellus subflavus*)

Element code: MACC0302 **ME-GAP code:** PISU

Order: Chiroptera **Family:** Vespertilionidae

Breeding range change: Unknown **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G5 . . SU **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Eastern Pipistrelle is a small bat that inhabits open woods, usually near water. They feed along slow moving streams, over ponds, or over pastures and fields. Large forest openings (e.g., harvests) are used while feeding, but small openings (e.g., the path of a logging road) are not. Eastern Pipistrelles roost most commonly in caves or mines, and require them for hibernation. In summer months these bats also may roost under flaked bark of trees, rock crevices, or in buildings.

Specific habitats used: For hibernation caves or mines with humid conditions, ranging from 0 to 6 EC, are used by Eastern Pipistrelles. This bat most likely migrates south of Maine to hibernate.

Comments:

Predicted habitat quantities:

EASTERN PIPISTRELLE					Total in ha: 1,241,220
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*5,569*	Fresh emergent	12,329
Abandoned field	4,781	Heavy partial cut	10,662	Peatland	4,560
Blueberry field	*646*	Deciduous forest	131,197	Wet meadow	2,424
Grassland	181,722	Decid./Conif. forest	229,684	Salt aquatic bed	4,351
Crops/Ground	*5,233*	Conif./Decid. forest	262,046	Salt emergent	6,801
Developed lands		Coniferous forest	130,753	Mudflat	13,080
Sparse residential	19,894	**Wetlands**		Sand shore	861
Dense residential	18,312	Deciduous forested	27,812	Gravel shore	*21*
Urban/Industrial	*369*	Coniferous forested	28,889	Rock shore	*262*
Highways/Runways	138	Dead-forested	494	Shallow water	2,880
Forestlands		Decid. shrub-scrub	18,177	Open water	86,620
Clearcut	11,666	Conifer. shrub-scrub	1,914	**Other**	
Early regeneration	*6,000*	Dead shrub-scrub	18	Alpine tundra	*0*
Late regeneration	*9,060*	Fresh aquatic bed	80	Exposed rock/Talus	1,916

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BIG BROWN BAT (*Eptesicus fuscus*)

Element code: MACC0401 **ME-GAP code:** EPFU

Order: Chiroptera **Family:** Vespertilionidae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S4 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Big Brown Bats are relatively adapted to disturbance, hibernating and roosting in buildings more than other New England bats. In addition, this species will roost in hollow trees, tunnels, or rock crevices. Big Brown Bats will forage along forest openings, over and near streams, ponds, or meadows, or within meadows.

Specific habitats used: Cool, humid caves or buildings are needed for hibernation.

Comments: Most bats seen roosting on, or in buildings are Little Brown Myotis or this species. As an aerial feeder, the Big brown Bat occurs in most of the state's habitats.

Predicted habitat quantities:

BIG BROWN BAT					**Total in ha:** 7,909,619
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*83,027*	Fresh emergent	68,277
Abandoned field	17,447	Heavy partial cut	138,548	Peatland	45,982
Blueberry field	*7,009*	Deciduous forest	1,254,728	Wet meadow	16,273
Grassland	437,115	Decid./Conif. forest	1,295,546	Salt aquatic bed	6,857
Crops/Ground	*55,571*	Conif./Decid. forest	1,714,862	Salt emergent	7,679
Developed lands		Coniferous forest	763,713	Mudflat	17,520
Sparse residential	61,073	**Wetlands**		Sand shore	*579*
Dense residential	32,780	Deciduous forested	70,801	Gravel shore	*1,589*
Urban/Industrial	*823*	Coniferous forested	378,288	Rock shore	*3,069*
Highways/Runways	699	Dead-forested	2,650	Shallow water	13,925
Forestlands		Decid. shrub-scrub	132,634	Open water	458,863
Clearcut	115,994	Conifer. shrub-scrub	15,205	**Other**	
Early regeneration	482,720	Dead shrub-scrub	115	Alpine tundra	*613*
Late regeneration	*202,735*	Fresh aquatic bed	129	Exposed rock/Talus	4,184

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN RED BAT (*Lasiurus borealis*)

Element code: MACC0501

ME-GAP code: LABO

Order: Chiroptera

Family: Vespertilionidae

Breeding range change: Stable

Game species: No

Population level: Uncommon

Population trend: Unknown

Heritage ranks: G5 . . SU

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: The Eastern Red Bat, like the Hoary, is closely associated with forests and has adapted to built-up areas. They feed along forest edges, especially waterways and riparian areas, as well as along fields from tree tips to ground level.

Specific habitats used: Daytime roosts in hollow trees, caves, buildings, and other areas not in direct sunlight are required.

Comments: Eastern Red Bats migrate south of Maine for the winter. During the breeding season, this species feeds from the air over a variety of habitats, resulting in most of the state shown as habitat.

Predicted habitat quantities:

EASTERN RED BAT					Total in ha: 8,104,387
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	107,899	Fresh emergent	69,020
Abandoned field	18,317	Heavy partial cut	145,275	Peatland	46,248
Blueberry field	*7,214*	Deciduous forest	1,263,063	Wet meadow	16,382
Grassland	439,816	Decid./Conif. forest	1,308,595	Salt aquatic bed	6,970
Crops/Ground	*56,818*	Conif./Decid. forest	1,735,964	Salt emergent	7,746
Developed lands		Coniferous forest	767,315	Mudflat	17,691
Sparse residential	63,429	**Wetlands**		Sand shore	*588*
Dense residential	32,847	Deciduous forested	70,702	Gravel shore	*1,601*
Urban/Industrial	*816*	Coniferous forested	380,902	Rock shore	*3,063*
Highways/Runways	720	Dead-forested	2,645	Shallow water	13,973
Forestlands		Decid. shrub-scrub	132,544	Open water	457,928
Clearcut	120,083	Conifer. shrub-scrub	15,136	**Other**	
Early regeneration	514,310	Dead shrub-scrub	116	Alpine tundra	*438*
Late regeneration	276,702	Fresh aquatic bed	126	Exposed rock/Talus	*1,383*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

HOARY BAT (*Lasiurus cinereus*)

Element code: MACC0503 **ME-GAP code:** LACI

Order: Chiroptera **Family:** Vespertilionidae

Breeding range change: Stable **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G5 . . SU **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Hoary Bats are one of the migratory bats that arrive in Maine during in late spring (Others being the Silver-haired Bat, Eastern Red Bat, and perhaps the Eastern Pipistrelle). Females do not form maternal colonies; they roost singly in large trees near forest edges or along residential streets and tend their young. While feeding, Hoary Bats favor the edges of coniferous forests, but will feed near other forest types. They will also feed along streams and rivers, and over wetlands and ponds.

Specific habitats used: The presence of forests edges are associated with feeding and roost sites.

Comments: Aerial feeders like the bats forage over and along the edges, of many habitats, leading to most of the state shown as habitat.

Predicted habitat quantities:

HOARY BAT					**Total in ha:** 8,050,955
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	108,722	Fresh emergent	69,533
Abandoned field	18,129	Heavy partial cut	147,060	Peatland	45,977
Blueberry field	*7,273*	Deciduous forest	1,245,940	Wet meadow	16,557
Grassland	435,931	Decid./Conif. forest	1,294,484	Salt aquatic bed	6,253
Crops/Ground	*55,822*	Conif./Decid. forest	1,738,493	Salt emergent	7,070
Developed lands		Coniferous forest	775,047	Mudflat	*6,053*
Sparse residential	62,458	**Wetlands**		Sand shore	*560*
Dense residential	*12,016*	Deciduous forested	70,606	Gravel shore	*1,584*
Urban/Industrial	*398*	Coniferous forested	379,685	Rock shore	*3,005*
Highways/Runways	545	Dead-forested	2,639	Shallow water	14,089
Forestlands		Decid. shrub-scrub	133,143	Open water	457,264
Clearcut	122,093	Conifer. shrub-scrub	15,170	**Other**	
Early regeneration	518,099	Dead shrub-scrub	116	Alpine tundra	*450*
Late regeneration	277,367	Fresh aquatic bed	127	Exposed rock/Talus	*1,195*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NEW ENGLAND COTTONTAIL (*Sylvilagus transitionalis*)

Element code: MAEB0105

ME-GAP code: SYTR

Order: Lagomorpha

Family: Leporidae

Breeding range change: Contracting

Game species: No

Population level: Rare

Population trend: Declining, due to forest maturation

Heritage ranks: G4 . . S2

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: New England Cottontails are a brushland species, and in Maine they are at their northern range limit. They occur in abandoned farmlands of many types (e.g., orchards, blueberry fields, pastures, and powerline edges) and bushy patches at the edges of wetlands and other forest openings, and in thickets within regeneration stands.

Specific habitats used: Early successional brushlands are apparently required for food and cover for New England Cottontails.

Comments: New England Cottontails were more common decades ago when agriculture was plentiful in southern Maine. With abandoned fields maturing into forests, New England Cottontails have declined dramatically. Predicted habitats probably an over-representation due to entire types of habitats included (e.g., grasslands) when in reality only edges are used.

Predicted habitat quantities:

NEW ENGLAND COTTONTAIL					Total in ha: 172,273
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*1,011*	Fresh emergent	3,399
Abandoned field	404	Heavy partial cut	2,552	Peatland	752
Blueberry field	*14*	Deciduous forest	*3,302*	Wet meadow	497
Grassland	90,383	Decid./Conif. forest	*9,103*	Salt aquatic bed	*20*
Crops/Ground	*1,597*	Conif./Decid. forest	*7,398*	Salt emergent	292
Developed lands		Coniferous forest	*1,993*	Mudflat	*25*
Sparse residential	*1,233*	**Wetlands**		Sand shore	*9*
Dense residential	*858*	Deciduous forested	12,071	Gravel shore	*0*
Urban/Industrial	*87*	Coniferous forested	10,016	Rock shore	*2*
Highways/Runways	15	Dead-forested	109	Shallow water	*154*
Forestlands		Decid. shrub-scrub	5,948	Open water	*442*
Clearcut	4,194	Conifer. shrub-scrub	771	**Other**	
Early regeneration	6,280	Dead shrub-scrub	11	Alpine tundra	*0*
Late regeneration	7,142	Fresh aquatic bed	*0*	Exposed rock/Talus	*191*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SNOWSHOE HARE (*Lepus americanus*)

Element code: MAEB0301

ME-GAP code: LEAM

Order: Lagomorpha

Family: Leporidae

Breeding range change: Stable

Game species: Yes

Population level: Common

Population trend: Probably down, due to forest maturation

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: Snowshoe Hares are strongly associated with young forests, both coniferous and deciduous, that provide a high stem density and thus food and escape cover. Regenerating forests, abandoned farmlands, and wetlands with shrubby vegetation are regularly used. This species will sometimes eat dirt from roadways, apparently for salts.

Specific habitats used: Dense, early successional shrublands are favored by Snowshoe Hares for food and cover.

Comments:

Predicted habitat quantities:

SNOWSHOE HARE					Total in ha: 2,262,377
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*28,858*	Fresh emergent	43,386
Abandoned field	10,963	Heavy partial cut	72,754	Peatland	38,873
Blueberry field	*3,899*	Deciduous forest	*103,565*	Wet meadow	10,037
Grassland	287,531	Decid./Conif. forest	*179,903*	Salt aquatic bed	*1,608*
Crops/Ground	*31,998*	Conif./Decid. forest	*266,832*	Salt emergent	5,259
Developed lands		Coniferous forest	*122,214*	Mudflat	*2,177*
Sparse residential	37,919	**Wetlands**		Sand shore	*350*
Dense residential	*6,573*	Deciduous forested	42,091	Gravel shore	*398*
Urban/Industrial	*301*	Coniferous forested	249,418	Rock shore	*522*
Highways/Runways	*237*	Dead-forested	1,423	Shallow water	*4,475*
Forestlands		Decid. shrub-scrub	88,133	Open water	*24,392*
Clearcut	74,160	Conifer. shrub-scrub	10,797	**Other**	
Early regeneration	368,550	Dead shrub-scrub	69	Alpine tundra	*55*
Late regeneration	142,029	Fresh aquatic bed	*32*	Exposed rock/Talus	*595*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN CHIPMUNK (*Tamias striatus*)

Element code: MAFB0223 **ME-GAP code:** TAST

Order: Rodentia **Family:** Sciuridae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Eastern Chipmunks inhabit deciduous and mixed forests, especially sites that have downed logs, dense thickets, or stone walls. The species is commonly found in bushy areas around abandoned farmlands.

Specific habitats used: Dry sites are used for burrowing, resting, sleeping, and raising young.

Comments:

Predicted habitat quantities:

EASTERN CHIPMUNK					Total in ha: 6,288,755
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	96,372	Fresh emergent	*30,186*
Abandoned field	16,892	Heavy partial cut	139,916	Peatland	*7,644*
Blueberry field	*6,621*	Deciduous forest	1,233,065	Wet meadow	*6,277*
Grassland	419,113	Decid./Conif. forest	1,237,878	Salt aquatic bed	*1,815*
Crops/Ground	*51,859*	Conif./Decid. forest	1,468,948	Salt emergent	*984*
Developed lands		Coniferous forest	*328,771*	Mudflat	*1,190*
Sparse residential	56,374	**Wetlands**		Sand shore	*198*
Dense residential	31,319	Deciduous forested	*33,856*	Gravel shore	*437*
Urban/Industrial	*741*	Coniferous forested	*130,763*	Rock shore	*1,116*
Highways/Runways	*556*	Dead-forested	*1,285*	Shallow water	*6,060*
Forestlands		Decid. shrub-scrub	92,153	Open water	*44,367*
Clearcut	108,020	Conifer. shrub-scrub	*5,224*	**Other**	
Early regeneration	475,151	Dead shrub-scrub	96	Alpine tundra	*160*
Late regeneration	252,139	Fresh aquatic bed	*51*	Exposed rock/Talus	*1,158*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WOODCHUCK (*Marmota monax*)

Element code: MAFB0301

ME-GAP code: MAMO

Order: Rodentia

Family: Sciuridae

Breeding range change: Stable

Game species: Yes

Population level: Common

Population trend: Probably down, due to forest maturation

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Woodchucks inhabit open habitats including pastures, meadows, orchards, reverting farmlands, highway edges, and clear-cuts. Woodchucks use forest edges, especially for den sites, but rarely occur in the closed-canopy interior. Openings created by the flooding of rivers are also used. In openings, Woodchucks will feed on surrounding vegetation, especially on forbs and grasses.

Specific habitats used: Woodchucks need soil deep and dry enough so that dens, critical to winter survival, can be dug.

Comments:

Predicted habitat quantities:

WOODCHUCK					**Total in ha:** 3,519,374
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*33,911*	Fresh emergent	*15,320*
Abandoned field	11,184	Heavy partial cut	89,337	Peatland	*3,984*
Blueberry field	8,797	Deciduous forest	1,068,833	Wet meadow	8,528
Grassland	350,145	Decid./Conif. forest	885,490	Salt aquatic bed	*1,511*
Crops/Ground	82,560	Conif./Decid. forest	*424,255*	Salt emergent	*1,008*
Developed lands		Coniferous forest	*82,664*	Mudflat	*1,225*
Sparse residential	*23,387*	**Wetlands**		Sand shore	1,810
Dense residential	*7,545*	Deciduous forested	*18,391*	Gravel shore	*243*
Urban/Industrial	*268*	Coniferous forested	*48,861*	Rock shore	*641*
Highways/Runways	304	Dead-forested	*562*	Shallow water	*3,089*
Forestlands		Decid. shrub-scrub	64,589	Open water	*23,765*
Clearcut	70,048	Conifer. shrub-scrub	7,894	**Other**	
Early regeneration	*109,493*	Dead shrub-scrub	66	Alpine tundra	*60*
Late regeneration	*68,846*	Fresh aquatic bed	*40*	Exposed rock/Talus	*723*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN GRAY SQUIRREL (*Sciurus carolinensis*)

Element code: MAFB0701 **ME-GAP code:** SCCA

Order: Rodentia **Family:** Sciuridae

Breeding range change: Expanding **Game species**: Yes

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: At the northern limit of their range in Maine, Eastern Gray Squirrels inhabit a variety of pure and mixed forest stands, especially those with mast producing trees (e.g., oak, beech). Although they generally feed in deciduous forests, gray squirrels also feed on conifer seeds but generally avoid pure coniferous forests. Eastern Gray Squirrels also use bushy habitats, especially those adjacent to pole and mature forests, and inhabit low density urban areas.

Specific habitats used: The species builds leaf nests, but in Maine tree cavities may provide better protection from severe winter weather.

Comments:

Predicted habitat quantities:

EASTERN GRAY SQUIRREL					**Total in ha:** 3,613,126
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	68,387	Fresh emergent	*8,096*
Abandoned field	15,758	Heavy partial cut	94,709	Peatland	*1,602*
Blueberry field	*1,784*	Deciduous forest	907,173	Wet meadow	*1,690*
Grassland	*60,562*	Decid./Conif. forest	834,863	Salt aquatic bed	*746*
Crops/Ground	*7,840*	Conif./Decid. forest	1,168,136	Salt emergent	*433*
Developed lands		Coniferous forest	*95,563*	Mudflat	3,093
Sparse residential	46,801	**Wetlands**		Sand shore	588
Dense residential	*2,079*	Deciduous forested	55,659	Gravel shore	522
Urban/Industrial	*29*	Coniferous forested	*28,917*	Rock shore	1,200
Highways/Runways	*186*	Dead-forested	1,894	Shallow water	*1,365*
Forestlands		Decid. shrub-scrub	87,300	Open water	*10,144*
Clearcut	*13,574*	Conifer. shrub-scrub	9,543	**Other**	
Early regeneration	*35,263*	Dead shrub-scrub	*9*	Alpine tundra	*2*
Late regeneration	*47,442*	Fresh aquatic bed	*17*	Exposed rock/Talus	*156*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RED SQUIRREL (*Tamiasciurus hudsonicus*)

Element code: MAFB0801 **ME-GAP code:** TAHU

Order: Rodentia **Family:** Sciuridae

Breeding range change: Stable **Game species**: Yes

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Red Squirrels inhabit coniferous forests throughout the region, but are most abundant in pure conifer and mixed stands, including northern hardwood mixes. The species will den underground in the winter, and is essentially arboreal (tree dwelling) in other seasons.

Specific habitats used: Young and mature forest stands are regularly used. Open brushlands are occasionally used.

Comments:

Predicted habitat quantities:

RED SQUIRREL					**Total in ha:** 4,259,399
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*47,625*	Fresh emergent	*26,188*
Abandoned field	11,513	Heavy partial cut	*48,790*	Peatland	*13,362*
Blueberry field	*3,515*	Deciduous forest	*333,181*	Wet meadow	*5,016*
Grassland	*115,194*	Decid./Conif. forest	863,805	Salt aquatic bed	*2,398*
Crops/Ground	*20,897*	Conif./Decid. forest	1,364,658	Salt emergent	*808*
Developed lands		Coniferous forest	641,996	Mudflat	*1,070*
Sparse residential	37,733	**Wetlands**		Sand shore	*231*
Dense residential	*4,560*	Deciduous forested	*27,020*	Gravel shore	*375*
Urban/Industrial	*92*	Coniferous forested	300,973	Rock shore	*1,152*
Highways/Runways	*266*	Dead-forested	1,907	Shallow water	*5,745*
Forestlands		Decid. shrub-scrub	*51,201*	Open water	*40,254*
Clearcut	*38,563*	Conifer. shrub-scrub	10,577	**Other**	
Early regeneration	*124,755*	Dead shrub-scrub	62	Alpine tundra	*335*
Late regeneration	*113,081*	Fresh aquatic bed	*36*	Exposed rock/Talus	*466*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SOUTHERN FLYING SQUIRREL (*Glaucomys volans*)

Element code: MAFB0901 **ME-GAP code:** GLVO

Order: Rodentia **Family:** Sciuridae

Breeding range change: Expanding **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G5 . . SU **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Southern Flying Squirrels use mature deciduous or mixed forests, with some understory. Sites with mature mast producing species are selected, such as oak and beech stands, but the squirrels will use other tree species (e.g., poplars). Either the limit of mast producing trees, or low temperature limits the species' range in Maine. In Maine, Southern Flying Squirrels must build nest within hollow trees or buildings to avoid freezing.

Specific habitats used: Tree cavities, such as those excavated by woodpecker nests, are used in non-urban settings for nest sites.

Comments: In the winter Southern Flying Squirrels roost in groups.

Predicted habitat quantities:

SOUTHERN FLYING SQUIRREL					Total in ha:	434,760
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	6,890	Fresh emergent		*966*
Abandoned field	*497*	Heavy partial cut	*1,356*	Peatland		*136*
Blueberry field	*247*	Deciduous forest	46,036	Wet meadow		*111*
Grassland	*13,805*	Decid./Conif. forest	126,872	Salt aquatic bed		*346*
Crops/Ground	*1,052*	Conif./Decid. forest	165,932	Salt emergent		*249*
Developed lands		Coniferous forest	*17,879*	Mudflat		*303*
Sparse residential	12,735	**Wetlands**		Sand shore		*42*
Dense residential	*765*	Deciduous forested	16,965	Gravel shore		*1*
Urban/Industrial	*25*	Coniferous forested	*2,675*	Rock shore		*78*
Highways/Runways	*27*	Dead-forested	365	Shallow water		*210*
Forestlands		Decid. shrub-scrub	10,155	Open water		*936*
Clearcut	*1,031*	Conifer. shrub-scrub	*147*	**Other**		
Early regeneration	*2,185*	Dead shrub-scrub	*0*	Alpine tundra		*0*
Late regeneration	*3,587*	Fresh aquatic bed	*9*	Exposed rock/Talus		*146*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN FLYING SQUIRREL (*Glaucomys sabrinus*)

Element code: MAFB0902 **ME-GAP code:** GLSA

Order: Rodentia **Family:** Sciuridae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Northern Flying Squirrels inhabit mixed stands of coniferous and deciduous tree species, as well as pure stands of conifers. Red spruce, hemlock-birch, and hemlock-maple stands appear to be selected, and the species is less common in pure stands. Within these areas, Northern Flying Squirrels feed on fungi, lichens, and nuts. The species is most common above 330 m elevation.

Specific habitats used: Mature trees with nesting cavities are used for resting, sleeping, and raising young.

Comments: In the winter, Northern Flying Squirrels regularly sleep in small groups within tree cavities.

Predicted habitat quantities:

NORTHERN FLYING SQUIRREL					**Total in ha:** 5,610,354
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	79,783	Fresh emergent	*28,516*
Abandoned field	*7,196*	Heavy partial cut	*72,420*	Peatland	*13,692*
Blueberry field	*3,214*	Deciduous forest	1,133,469	Wet meadow	*5,557*
Grassland	*141,404*	Decid./Conif. forest	1,108,199	Salt aquatic bed	*2,253*
Crops/Ground	*22,489*	Conif./Decid. forest	1,478,320	Salt emergent	*773*
Developed lands		Coniferous forest	663,634	Mudflat	*957*
Sparse residential	*22,383*	**Wetlands**		Sand shore	*194*
Dense residential	*4,402*	Deciduous forested	53,622	Gravel shore	*410*
Urban/Industrial	*48*	Coniferous forested	307,702	Rock shore	*1,225*
Highways/Runways	*164*	Dead-forested	2,007	Shallow water	*6,188*
Forestlands		Decid. shrub-scrub	*55,792*	Open water	*44,848*
Clearcut	*48,039*	Conifer. shrub-scrub	*5,913*	**Other**	
Early regeneration	*157,091*	Dead shrub-scrub	*41*	Alpine tundra	*370*
Late regeneration	*137,458*	Fresh aquatic bed	*45*	Exposed rock/Talus	*537*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN BEAVER (*Castor canadensis*)

Element code: MAFE0101

ME-GAP code: CACN

Order: Rodentia

Family: Castoridae

Breeding range change: Stable

Game species: Yes

Population level: Common

Population trend: Variable in recent years; increasing since 1930's.

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: Beavers are a water dependent species using all types of water, including rivers, streams, ponds, lakes, and wetlands (forested and unforested). They feed upon aquatic plants and the cambium of a variety of hardwoods, especially aspen, birch, willow, and alder. In low gradient areas such as the lower reaches of large rivers, American Beaver tend to use bank dens, whereas in the upper portions of watersheds beaver build dams and lodges.

Specific habitats used: Adequate woody materials are required to build dams and lodges, or in the place of lodges, deep enough soils to dig-out for shoreline dens.

Comments: American Beavers nearly disappeared from Maine in the early 1900's, because of heavy harvesting. After trapping was regulated, beavers made a dramatic recovery, repopulating the state from north to south. Harvest levels of beaver vary greatly in Maine depending on pelt prices, ice conditions, and weather.

Predicted habitat quantities:

AMERICAN BEAVER					**Total in ha:** 3,192,907
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	43,514	Fresh emergent	60,808
Abandoned field	9,152	Heavy partial cut	53,519	Peatland	42,393
Blueberry field	*3,607*	Deciduous forest	282,804	Wet meadow	14,808
Grassland	*90,385*	Decid./Conif. forest	441,840	Salt aquatic bed	2,079
Crops/Ground	*18,235*	Conif./Decid. forest	790,059	Salt emergent	3,186
Developed lands		Coniferous forest	*242,607*	Mudflat	1,852
Sparse residential	*16,262*	**Wetlands**		Sand shore	270
Dense residential	*3,869*	Deciduous forested	61,100	Gravel shore	*1,411*
Urban/Industrial	*87*	Coniferous forested	326,378	Rock shore	*2,282*
Highways/Runways	*151*	Dead-forested	2,359	Shallow water	11,577
Forestlands		Decid. shrub-scrub	117,816	Open water	168,017
Clearcut	*34,103*	Conifer. shrub-scrub	13,334	**Other**	
Early regeneration	210,645	Dead shrub-scrub	55	Alpine tundra	*57*
Late regeneration	121,834	Fresh aquatic bed	106	Exposed rock/Talus	*346*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

DEER MOUSE (*Peromyscus maniculatus*)

Element code: MAFF0304 **ME-GAP code:** PEMA

Order: Rodentia **Family:** Muridae

Breeding range change: Unknown **Game species**: No

Population level: Abundant **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: Deer Mice use a variety of habitats, but they are most common in the coniferous forests within their range of central and northern Maine. These mice will select balsam fir, white pine, and hemlock stands, using both the interiors and edges of these habitats. Clearcut and regenerating stands provide good cover for Deer Mice (although these habitats are favored by White-footed Mice). This species uses rocky habitats, stone fences, and downed logs for cover and travel.

Specific habitats used: None were found reported in the literature.

Comments: Deer Mice use moister habitats than White-footed Mice, and are distributed more to the north.

Predicted habitat quantities:

DEER MOUSE					Total in ha: 6,030,811
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	90,808	Fresh emergent	*12,524*
Abandoned field	14,770	Heavy partial cut	132,680	Peatland	42,597
Blueberry field	*2,663*	Deciduous forest	1,044,683	Wet meadow	12,333
Grassland	196,922	Decid./Conif. forest	1,023,096	Salt aquatic bed	*1,368*
Crops/Ground	*17,483*	Conif./Decid. forest	1,461,832	Salt emergent	*308*
Developed lands		Coniferous forest	659,013	Mudflat	*437*
Sparse residential	42,231	**Wetlands**		Sand shore	*123*
Dense residential	10,958	Deciduous forested	*10,108*	Gravel shore	*221*
Urban/Industrial	*0*	Coniferous forested	339,712	Rock shore	*603*
Highways/Runways	441	Dead-forested	*538*	Shallow water	*2,552*
Forestlands		Decid. shrub-scrub	*24,934*	Open water	*13,844*
Clearcut	106,509	Conifer. shrub-scrub	12,097	**Other**	
Early regeneration	501,709	Dead shrub-scrub	79	Alpine tundra	1,978
Late regeneration	248,282	Fresh aquatic bed	*18*	Exposed rock/Talus	*358*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WHITE-FOOTED MOUSE (*Peromyscus leucopus*)

Element code: MAFF0307 **ME-GAP code:** PELE

Order: Rodentia **Family:** Muridae

Breeding range change: Unknown **Game species**: No

Population level: Abundant **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: White-footed Mice inhabit a variety of habitats, tending to use more xeric sites than Deer Mice. White-footed Mice use relatively dry deciduous or coniferous forests, including stands of white pine, oak, or hemlock. Where Deer Mice are uncommon, White-footed Mice also will use mixed deciduous stands, such as northern hardwood mixes. (White-footed Mice appear to be excluded from these habitats by Deer Mice.) White-footed Mice use young forest classes with brushy vegetation, may use rock piles as cover, and may use buildings.

Specific habitats used: None were found reported in the literature.

Comments:

Predicted habitat quantities:

WHITE-FOOTED MOUSE					**Total in ha:** 1,024,942
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	15,343	Fresh emergent	8,502
Abandoned field	1,807	Heavy partial cut	9,756	Peatland	1,381
Blueberry field	702	Deciduous forest	154,335	Wet meadow	1,662
Grassland	188,903	Decid./Conif. forest	227,793	Salt aquatic bed	*329*
Crops/Ground	11,828	Conif./Decid. forest	207,031	Salt emergent	*434*
Developed lands		Coniferous forest	101,139	Mudflat	*493*
Sparse residential	15,762	**Wetlands**		Sand shore	*79*
Dense residential	*2,854*	Deciduous forested	*6,246*	Gravel shore	*5*
Urban/Industrial	*154*	Coniferous forested	*4,516*	Rock shore	*98*
Highways/Runways	74	Dead-forested	*80*	Shallow water	*601*
Forestlands		Decid. shrub-scrub	13,112	Open water	*2,543*
Clearcut	10,282	Conifer. shrub-scrub	*345*	**Other**	
Early regeneration	14,773	Dead shrub-scrub	*9*	Alpine tundra	0
Late regeneration	21,000	Fresh aquatic bed	*6*	Exposed rock/Talus	966

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SOUTHERN RED-BACKED VOLE (*Clethrionomys gapperi*)

Element code: MAFF0902 **ME-GAP code:** CLGA

Order: Rodentia **Family:** Muridae

Breeding range change: Stable **Game species**: No

Population level: Abundant **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: Southern Red-backed Voles occur within pure or mixed coniferous and deciduous stands, but they are most common in coniferous stands (e.g., hemlock stands). Sites inhabited by Southern Red-backed Voles must be moist, with moss covered logs, boulders, or stone fences for cover. This vole will occur within forested areas that have not been harvested, inhabiting moist areas around slash piles, for example.

Specific habitats used: Humid microsites with debris or stone for cover are required.

Comments: Southern Red-backed Voles are usually the most abundant mammal in any suitable habitat.

Predicted habitat quantities:

SOUTHERN RED-BACKED VOLE **Total in ha:** 7,575,335

Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	110,766	Fresh emergent	*44,705*
Abandoned field	17,958	Heavy partial cut	149,803	Peatland	44,289
Blueberry field	*6,998*	Deciduous forest	1,262,345	Wet meadow	13,989
Grassland	431,327	Decid./Conif. forest	1,308,565	Salt aquatic bed	*3,157*
Crops/Ground	*54,934*	Conif./Decid. forest	1,717,648	Salt emergent	*1,184*
Developed lands		Coniferous forest	748,000	Mudflat	*1,599*
Sparse residential	61,086	**Wetlands**		Sand shore	*331*
Dense residential	*11,014*	Deciduous forested	67,338	Gravel shore	*654*
Urban/Industrial	*341*	Coniferous forested	375,905	Rock shore	*1,652*
Highways/Runways	*420*	Dead-forested	2,503	Shallow water	*9,318*
Forestlands		Decid. shrub-scrub	123,747	Open water	*62,613*
Clearcut	122,194	Conifer. shrub-scrub	14,197	**Other**	
Early regeneration	520,962	Dead shrub-scrub	107	Alpine tundra	*432*
Late regeneration	282,049	Fresh aquatic bed	*71*	Exposed rock/Talus	*1,135*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MEADOW VOLE (*Microtus pennsylvanicus*)

Element code: MAFF1101 **ME-GAP code:** MIPE

Order: Rodentia **Family:** Muridae

Breeding range change: Stable **Game species**: No

Population level: Abundant **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: Meadow Voles inhabit fields and pastures, meadows, and grassy forest openings. Bog and salt marshes are selected, and the edges of streams and ponds are used. This species also will use clearcut forestlands, with densities higher than in the surrounding forest. Meadow Voles will sometimes move into open forests, especially when populations are high (these voles are territorial and show cyclic population levels).

Specific habitats used: No special microsite requirements were found in the literature.

Comments:

Predicted habitat quantities:

MEADOW VOLE					**Total in ha:** 7,806,455
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	111,036	Fresh emergent	67,607
Abandoned field	19,016	Heavy partial cut	150,103	Peatland	45,334
Blueberry field	12,838	Deciduous forest	1,269,652	Wet meadow	15,105
Grassland	452,142	Decid./Conif. forest	1,326,957	Salt aquatic bed	*3,302*
Crops/Ground	106,295	Conif./Decid. forest	1,756,946	Salt emergent	1,412
Developed lands		Coniferous forest	769,190	Mudflat	*1,684*
Sparse residential	63,486	**Wetlands**		Sand shore	*346*
Dense residential	*12,165*	Deciduous forested	70,899	Gravel shore	*777*
Urban/Industrial	*358*	Coniferous forested	384,443	Rock shore	*1,731*
Highways/Runways	574	Dead-forested	2,668	Shallow water	*10,228*
Forestlands		Decid. shrub-scrub	131,533	Open water	*69,015*
Clearcut	123,794	Conifer. shrub-scrub	14,865	**Other**	
Early regeneration	524,103	Dead shrub-scrub	107	Alpine tundra	1,897
Late regeneration	283,418	Fresh aquatic bed	*79*	Exposed rock/Talus	*1,350*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

ROCK VOLE (*Microtus chrotorrhinus*)

Element code: MAFF1109

ME-GAP code: MICH

Order: Rodentia

Family: Muridae

Breeding range change: Stable

Game species: No

Population level: Rare

Population trend: Unknown

Heritage ranks: G4 . . S3

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Rock Voles inhabit a restricted ecological niche, occurring in humid, moss covered rocks formed on talus slopes at high elevations; the species is rarely found below 915 m (3000 ft) elevation, but has been located down to 451 m (1500 ft). Rock Voles are frequently associated with rocky areas near streams running through coniferous forest stands. At mountain peaks, fog and dew can provide the moisture and humidity needed by this species.

Specific habitats used: Damp, cool, rock or talus slopes near water are used by Rock Voles.

Comments: In Maine, Rock Voles are sometimes known as Yellow-nosed Voles. Maine's Critical Areas Program has conducted several surveys for Rock Voles.

Predicted habitat quantities:

ROCK VOLE					Total in ha:	101,815
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*1,302*	Fresh emergent		*771*
Abandoned field	55	Heavy partial cut	3,110	Peatland		*149*
Blueberry field	*0*	Deciduous forest	9,698	Wet meadow		*104*
Grassland	*56*	Decid./Conif. forest	15,585	Salt aquatic bed		*0*
Crops/Ground	*5*	Conif./Decid. forest	19,977	Salt emergent		*0*
Developed lands		Coniferous forest	21,395	Mudflat		0
Sparse residential	*87*	**Wetlands**		Sand shore		0
Dense residential	*4*	Deciduous forested	735	Gravel shore		5
Urban/Industrial	*0*	Coniferous forested	12,725	Rock shore		0
Highways/Runways	0	Dead-forested	52	Shallow water		782
Forestlands		Decid. shrub-scrub	4,410	Open water		*776*
Clearcut	1,710	Conifer. shrub-scrub	534	**Other**		
Early regeneration	*1,939*	Dead shrub-scrub	2	Alpine tundra		1,597
Late regeneration	*2,294*	Fresh aquatic bed	*0*	Exposed rock/Talus		1,955

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WOODLAND VOLE (*Microtus pinetorum*)

Element code: MAFF1115 **ME-GAP code:** MIPI

Order: Rodentia **Family:** Muridae

Breeding range change: Unknown **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G5 . . S1 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Woodland Voles use a variety of habitats, but deciduous stands, grassy areas, pastures, and meadows are used most often; rarely are Woodland Voles found in coniferous stands. These voles can become pests within orchards, girdling trees. Woodland Voles inhabit areas with some groundcover, and burrow within well drained soils that remain moist.

Specific habitats used: No special microsite requirements were found in the literature.

Comments:

Predicted habitat quantities:

WOODLAND VOLE					**Total in ha:** 133,646
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	3,890	Fresh emergent	*275*
Abandoned field	0	Heavy partial cut	724	Peatland	*36*
Blueberry field	*29*	Deciduous forest	12,627	Wet meadow	*22*
Grassland	38,000	Decid./Conif. forest	47,158	Salt aquatic bed	*15*
Crops/Ground	*647*	Conif./Decid. forest	*6,776*	Salt emergent	*58*
Developed lands		Coniferous forest	*874*	Mudflat	*15*
Sparse residential	*533*	**Wetlands**		Sand shore	*7*
Dense residential	*307*	Deciduous forested	9,305	Gravel shore	*0*
Urban/Industrial	*53*	Coniferous forested	*634*	Rock shore	*2*
Highways/Runways	*0*	Dead-forested	*7*	Shallow water	*81*
Forestlands		Decid. shrub-scrub	2,830	Open water	*108*
Clearcut	2,286	Conifer. shrub-scrub	313	**Other**	
Early regeneration	2,345	Dead shrub-scrub	0	Alpine tundra	*0*
Late regeneration	3,635	Fresh aquatic bed	*0*	Exposed rock/Talus	*54*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MUSKRAT (*Ondatra zibethicus*)

Element code: MAFF1501 **ME-GAP code:** ONZI

Order: Rodentia **Family:** Muridae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: Muskrats occur in all types of running and standing water. Muskrats are most abundant in slow or still waters, especially in emergent marshes supporting a variety of aquatic plants (e.g., cattails, duckweed, pickerel weed), their main food. Water bodies that freeze to the bottom or are too deep for aquatic plants (> 4 m) are unsuitable as year round habitats, as are water bodies with water levels that change too quickly. Slow moving streams near agricultural fields are also often occupied by dense populations of Muskrats.

Specific habitats used: Water bodies that are used year-round must not freeze to the bottom, be so deep (> 4 m) that emergent plant don't grow, or have water levels that change quickly.

Comments: Emergent marshes entirely covered with vegetation are not ideal for Muskrats. Biologists can cut channels in the vegetation to create open water and travel corridors for Muskrats.

Predicted habitat quantities:

MUSKRAT					**Total in ha:** 1,227,991
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*7,991*	Fresh emergent	41,014
Abandoned field	6,726	Heavy partial cut	*9,862*	Peatland	37,416
Blueberry field	5,074	Deciduous forest	*39,279*	Wet meadow	9,692
Grassland	159,218	Decid./Conif. forest	*82,785*	Salt aquatic bed	1,434
Crops/Ground	32,359	Conif./Decid. forest	*162,693*	Salt emergent	2,936
Developed lands		Coniferous forest	*86,216*	Mudflat	1,680
Sparse residential	*11,685*	**Wetlands**		Sand shore	291
Dense residential	*4,158*	Deciduous forested	40,063	Gravel shore	2,155
Urban/Industrial	*217*	Coniferous forested	223,607	Rock shore	1,611
Highways/Runways	*112*	Dead-forested	1,355	Shallow water	8,060
Forestlands		Decid. shrub-scrub	83,725	Open water	*77,611*
Clearcut	*13,492*	Conifer. shrub-scrub	10,178	**Other**	
Early regeneration	*40,145*	Dead shrub-scrub	32	Alpine tundra	*44*
Late regeneration	*22,619*	Fresh aquatic bed	79	Exposed rock/Talus	*377*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SOUTHERN BOG LEMMING (*Synaptomys cooperi*)

Element code: MAFF1701 **ME-GAP code:** SYCO

Order: Rodentia **Family:** Muridae

Breeding range change: Stable **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G5 . . S4 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Southern Bog Lemmings are most abundant in sphagnum bogs, marshes, and in moist meadows. Areas with at least 50% herbaceous ground cover are selected. Southern Bog Lemmings will use mixed or deciduous forest stands if a thick layer of duff has built-up) especially if the stand is near a bog or marsh. Orchards, row crops, and the edges of clearcuts are occasionally used.

Specific habitats used: Humid conditions at the microsite are required.

Comments:

Predicted habitat quantities:

SOUTHERN BOG LEMMING					**Total in ha:** 5,671,765
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*55,664*	Fresh emergent	55,813
Abandoned field	15,338	Heavy partial cut	*74,739*	Peatland	40,944
Blueberry field	10,749	Deciduous forest	1,160,766	Wet meadow	12,790
Grassland	385,149	Decid./Conif. forest	1,137,471	Salt aquatic bed	*1,517*
Crops/Ground	*42,899*	Conif./Decid. forest	1,388,856	Salt emergent	1,098
Developed lands		Coniferous forest	*323,759*	Mudflat	1,730
Sparse residential	*32,486*	**Wetlands**		Sand shore	*156*
Dense residential	*8,658*	Deciduous forested	59,699	Gravel shore	*523*
Urban/Industrial	*290*	Coniferous forested	301,526	Rock shore	*991*
Highways/Runways	*242*	Dead-forested	2,130	Shallow water	*7,210*
Forestlands		Decid. shrub-scrub	107,229	Open water	*46,270*
Clearcut	86,787	Conifer. shrub-scrub	12,716	**Other**	
Early regeneration	*162,260*	Dead shrub-scrub	82	Alpine tundra	*115*
Late regeneration	*132,194*	Fresh aquatic bed	*62*	Exposed rock/Talus	*855*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN BOG LEMMING (*Synaptomys borealis*)

Element code: MAFF1702 **ME-GAP code:** SYBO

Order: Rodentia **Family:** Muridae

Breeding range change: Stable **Game species**: No

Population level: Rare **Population trend**: Unknown

Heritage ranks: G4 . . S1 **Federally listed**: No

State listed: T **Knowledge**: Adequate

General habitats used: Northern Bog Lemmings inhabit cool bogs and peatlands, marshes, or moist meadows. In the northern parts of its range the species may also use dense beech and hemlock stands, if ground cover is available and the site is humid. Northern Bog Lemmings use damp pastures and tundra occasionally.

Specific habitats used: A humid microsite with thick ground cover is required.

Comments: Distribution in Maine is limited to the Mt. Katadin region. Few specimens have been identified in the state.

Predicted habitat quantities:

NORTHERN BOG LEMMING					Total in ha:	15,598
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*60*	Fresh emergent		164
Abandoned field	*0*	Heavy partial cut	*23*	Peatland		92
Blueberry field	*0*	Deciduous forest	*584*	Wet meadow		17
Grassland	*6*	Decid./Conif. forest	4,357	Salt aquatic bed		*0*
Crops/Ground	*3*	Conif./Decid. forest	3,916	Salt emergent		0
Developed lands		Coniferous forest	4,103	Mudflat		0
Sparse residential	*0*	**Wetlands**		Sand shore		*0*
Dense residential	*0*	Deciduous forested	42	Gravel shore		*6*
Urban/Industrial	*0*	Coniferous forested	728	Rock shore		*0*
Highways/Runways	*0*	Dead-forested	0	Shallow water		*15*
Forestlands		Decid. shrub-scrub	266	Open water		*16*
Clearcut	*45*	Conifer. shrub-scrub	40	**Other**		
Early regeneration	*326*	Dead shrub-scrub	0	Alpine tundra		605
Late regeneration	*150*	Fresh aquatic bed	*0*	Exposed rock/Talus		*33*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MEADOW JUMPING MOUSE (*Zapus hudsonius*)

Element code: MAFH0101 **ME-GAP code:** ZAHU

Order: Rodentia **Family:** Dipodidae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: The highest population densities of Meadow Jumping Mice are in sedge-meadow, shrub-scrub wetlands, and in agricultural lands. These jumping mice use the edges of streams and ponds, will inhabit the transitional areas between lowland and upland forests, and will use other forest edges and openings. Meadow Jumping Mice will occupy clearcuts and burns, especially areas with raspberry present.

Specific habitats used: The microsite occupied must be humid, with loose soil for burrowing.

Comments:

Predicted habitat quantities:

MEADOW JUMPING MOUSE					Total in ha: 7,757,319
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	110,934	Fresh emergent	67,281
Abandoned field	18,517	Heavy partial cut	147,974	Peatland	45,362
Blueberry field	12,833	Deciduous forest	1,267,740	Wet meadow	14,972
Grassland	442,428	Decid./Conif. forest	1,323,758	Salt aquatic bed	*3,272*
Crops/Ground	104,793	Conif./Decid. forest	1,749,868	Salt emergent	1,405
Developed lands		Coniferous forest	766,819	Mudflat	2,257
Sparse residential	*46,558*	**Wetlands**		Sand shore	437
Dense residential	*11,348*	Deciduous forested	70,039	Gravel shore	2,622
Urban/Industrial	*318*	Coniferous forested	382,376	Rock shore	2,992
Highways/Runways	459	Dead-forested	2,633	Shallow water	*10,043*
Forestlands		Decid. shrub-scrub	130,432	Open water	*69,485*
Clearcut	121,267	Conifer. shrub-scrub	14,810	**Other**	
Early regeneration	523,879	Dead shrub-scrub	107	Alpine tundra	1,884
Late regeneration	284,007	Fresh aquatic bed	*79*	Exposed rock/Talus	*1,329*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WOODLAND JUMPING MOUSE (*Napaeozapus insignis*)

Element code: MAFH0201 **ME-GAP code:** NAIN

Order: Rodentia **Family:** Dipodidae

Breeding range change: Stable **Game species**: No

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: Woodland Jumping Mice are most common in moist deciduous and coniferous forests, often associated with streams or ponds. They may be somewhat more common in deciduous or mixed forests (e.g., northern hardwood-hemlock mixes) than in coniferous (spruce-fir) forests. Areas with herbaceous vegetation are selected by Woodland Jumping Mice. These mice will enter sphagnum bogs, grassy areas, or clearcuts, but only if there are forest stands nearby.

Specific habitats used: Occupied microsites must be moist, with herbaceous vegetation present.

Comments:

Predicted habitat quantities:

WOODLAND JUMPING MOUSE					Total in ha: 2,140,666
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	24,997	Fresh emergent	55,632
Abandoned field	5,710	Heavy partial cut	28,783	Peatland	25,564
Blueberry field	*3,508*	Deciduous forest	113,170	Wet meadow	13,221
Grassland	87,465	Decid./Conif. forest	210,021	Salt aquatic bed	*1,622*
Crops/Ground	*20,898*	Conif./Decid. forest	484,622	Salt emergent	1,999
Developed lands		Coniferous forest	272,562	Mudflat	2,894
Sparse residential	*5,816*	**Wetlands**		Sand shore	573
Dense residential	*934*	Deciduous forested	53,348	Gravel shore	2,200
Urban/Industrial	*5*	Coniferous forested	348,801	Rock shore	3,289
Highways/Runways	*165*	Dead-forested	2,457	Shallow water	*3,644*
Forestlands		Decid. shrub-scrub	109,434	Open water	*21,265*
Clearcut	*32,761*	Conifer. shrub-scrub	11,847	**Other**	
Early regeneration	120,134	Dead shrub-scrub	50	Alpine tundra	*160*
Late regeneration	70,995	Fresh aquatic bed	*27*	Exposed rock/Talus	*93*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON PORCUPINE (*Erethizon dorsatum*)

Element code: MAFJ0101

ME-GAP code: ERDO

Order: Rodentia

Family: Erethizontidae

Breeding range change: Stable

Game species: Yes

Population level: Common

Population trend: Variable

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Porcupines are forest generalists, occurring in all types and ages of forests. They are most common in aspen, beech, hemlock, white cedar, balsam fir, and northern hardwood stands. In regenerating stands they will forage on raspberries. In summer, Common Porcupines travel through non-forest areas.

Specific habitats used: Den sites in large, hollow trees, talus slopes, small caves, and other underground sites provide protection from weather and predation, especially by fishers.

Comments: Common Porcupines can sometimes cause considerable damage to trees.

Predicted habitat quantities:

COMMON PORCUPINE					Total in ha: 6,965,131
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	101,925	Fresh emergent	63,092
Abandoned field	15,153	Heavy partial cut	138,983	Peatland	44,397
Blueberry field	*5,912*	Deciduous forest	1,212,279	Wet meadow	14,167
Grassland	*174,659*	Decid./Conif. forest	1,232,589	Salt aquatic bed	3,611
Crops/Ground	*31,230*	Conif./Decid. forest	1,664,206	Salt emergent	1,098
Developed lands		Coniferous forest	742,488	Mudflat	*1,286*
Sparse residential	*29,752*	**Wetlands**		Sand shore	*258*
Dense residential	*5,515*	Deciduous forested	63,806	Gravel shore	*715*
Urban/Industrial	*61*	Coniferous forested	369,936	Rock shore	*1,595*
Highways/Runways	*209*	Dead-forested	2,486	Shallow water	*9,117*
Forestlands		Decid. shrub-scrub	121,826	Open water	*61,102*
Clearcut	*74,886*	Conifer. shrub-scrub	13,828	**Other**	
Early regeneration	493,877	Dead shrub-scrub	81	Alpine tundra	*432*
Late regeneration	267,793	Fresh aquatic bed	96	Exposed rock/Talus	*684*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COYOTE (*Canis latrans*)

Element code: MAJA0101

ME-GAP code: CALA

Order: Carnivora

Family: Canidae

Breeding range change: Expanding

Game species: Yes

Population level: Common

Population trend: Increasing, due to colonization

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: Coyotes eat a variety of prey and thus use almost all available habitats when hunting. However, areas of high human activity are avoided. In terms of abundance, Coyotes are most numerous in areas with diverse habitats that produce a variety of animal and plant foods.

Specific habitats used: In Maine, natal dens tend to be located on the edges of forest openings, but such sites are common throughout the state and assumed not to be limiting.

Comments: Coyotes moved into Maine, on their own, in the 1960's and by the 1980's were distributed statewide.

Predicted habitat quantities:

COYOTE					**Total in ha:** 7,441,061
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	108,607	Fresh emergent	65,766
Abandoned field	17,228	Heavy partial cut	145,262	Peatland	44,265
Blueberry field	12,209	Deciduous forest	1,240,561	Wet meadow	14,681
Grassland	375,586	Decid./Conif. forest	1,282,334	Salt aquatic bed	*3,165*
Crops/Ground	*48,837*	Conif./Decid. forest	1,704,088	Salt emergent	1,203
Developed lands		Coniferous forest	751,965	Mudflat	2,102
Sparse residential	*37,279*	**Wetlands**		Sand shore	401
Dense residential	*0*	Deciduous forested	63,889	Gravel shore	2,624
Urban/Industrial	*0*	Coniferous forested	374,891	Rock shore	2,998
Highways/Runways	0	Dead-forested	2,556	Shallow water	*9,607*
Forestlands		Decid. shrub-scrub	126,298	Open water	*65,714*
Clearcut	118,086	Conifer. shrub-scrub	14,419	**Other**	
Early regeneration	517,635	Dead shrub-scrub	95	Alpine tundra	2,049
Late regeneration	280,851	Fresh aquatic bed	*73*	Exposed rock/Talus	3,737

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RED FOX (*Vulpes vulpes*)

Element code: MAJA0301

ME-GAP code: VUVU

Order: Carnivora

Family: Canidae

Breeding range change: Stable

Game species: Yes

Population level: Common

Population trend: Probably down, due to exclusion by coyotes

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: Coyotes limit the habitats in Maine available to Red Foxes (for example, harvest rates are inversely related for the two species). Areas in between or on the edges of Coyote territories, as well as areas frequented by humans, are used by Red Foxes. Abandoned farmlands near towns and cities as well as openings associated with lakeshore camps are major Red Fox habitats in Maine.

Specific habitats used: Other than the absence or low density of Coyotes, no other specific habitat needs were found reported.

Comments: Red Fox have been noted to be decreasing in recent years, as is reflected in their harvest numbers. This decrease may be due, in part, to competition with Coyotes; Coyotes exclude Red Fox from areas and thus residential areas, with few or no coyotes, were shown as habitat for Red Fox.

Predicted habitat quantities:

RED FOX					**Total in ha:** 3,192,754
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	44,454	Fresh emergent	*27,922*
Abandoned field	*14,171*	Heavy partial cut	51,810	Peatland	15,691
Blueberry field	*7,138*	Deciduous forest	330,540	Wet meadow	7,072
Grassland	*308,894*	Decid./Conif. forest	454,203	Salt aquatic bed	*3,397*
Crops/Ground	*77,295*	Conif./Decid. forest	783,166	Salt emergent	*6,391*
Developed lands		Coniferous forest	277,057	Mudflat	12,716
Sparse residential	63,255	**Wetlands**		Sand shore	712
Dense residential	*8,129*	Deciduous forested	40,657	Gravel shore	*479*
Urban/Industrial	*355*	Coniferous forested	138,686	Rock shore	*360*
Highways/Runways	518	Dead-forested	1,196	Shallow water	*5,196*
Forestlands		Decid. shrub-scrub	57,074	Open water	*146,287*
Clearcut	48,875	Conifer. shrub-scrub	5,476	**Other**	
Early regeneration	138,841	Dead shrub-scrub	45	Alpine tundra	*0*
Late regeneration	113,209	Fresh aquatic bed	*100*	Exposed rock/Talus	*1,386*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON GRAY FOX (*Urocyon cinereoargenteus*)

Element code: MAJA0401

ME-GAP code: URCI

Order: Carnivora

Family: Canidae

Breeding range change: Unknown

Game species: Yes

Population level: Uncommon

Population trend: Probably up, due to forest maturation

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Common Gray Foxes inhabit dense forest stands, with northern hardwood forests selected. Areas with thick brush are frequented, as are abandoned farmlands. Gray fox populations are most dense where forest stands and brushy areas are interspersed. Large open areas are avoided by Common Gray Foxes. Marshes and other wetlands are used by these foxes.

Specific habitats used: Hollow logs or rock crevices are most frequently used for dens, although Common Gray Foxes will occasionally use ground burrows and abandoned buildings.

Comments:

Predicted habitat quantities:

COMMON GRAY FOX					Total in ha:	972,585
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	16,354	Fresh emergent		6,815
Abandoned field	922	Heavy partial cut	12,220	Peatland		1,293
Blueberry field	*63*	Deciduous forest	184,917	Wet meadow		1,358
Grassland	159,505	Decid./Conif. forest	225,408	Salt aquatic bed		*71*
Crops/Ground	*2,879*	Conif./Decid. forest	185,852	Salt emergent		880
Developed lands		Coniferous forest	70,511	Mudflat		785
Sparse residential	*2,969*	**Wetlands**		Sand shore		104
Dense residential	*2,360*	Deciduous forested	24,916	Gravel shore		*12*
Urban/Industrial	*117*	Coniferous forested	20,984	Rock shore		*33*
Highways/Runways	*6*	Dead-forested	245	Shallow water		*537*
Forestlands		Decid. shrub-scrub	12,110	Open water		*2,451*
Clearcut	*2,515*	Conifer. shrub-scrub	1,335	**Other**		
Early regeneration	16,361	Dead shrub-scrub	33	Alpine tundra		*0*
Late regeneration	15,413	Fresh aquatic bed	*2*	Exposed rock/Talus		*248*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLACK BEAR (*Ursus americanus*)

Element code: MAJB0101

ME-GAP code: URAM

Order: Carnivora

Family: Ursidae

Breeding range change: Stable

Game species: Yes

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: Black Bears use almost all forested and nonforested habitats, but generally avoid areas of high human use. At night bears occasionally do come into built-up areas, especially if garbage is available. Bears eat a variety of natural and agricultural foods, including mast, grasses, fruit, and oats. Extensive forestlands interspersed with wetlands, mature hardwoods, abandoned farmlands, clear-cuts, and regeneration stands, but with generally poor access for people, are optimum bear habitats in Maine.

Specific habitats used: Black Bears require dens for raising offspring and avoiding severe winter weather. In Maine, den sites are apparently not limited because a great variety of sites are used, many of which are common (i.e., bases of uprooted trees).

Comments:

Predicted habitat quantities:

BLACK BEAR					**Total in ha:** 6,433,585
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	95,242	Fresh emergent	57,574
Abandoned field	14,675	Heavy partial cut	136,787	Peatland	43,022
Blueberry field	11,516	Deciduous forest	1,109,211	Wet meadow	13,717
Grassland	221,192	Decid./Conif. forest	1,075,668	Salt aquatic bed	*886*
Crops/Ground	81,870	Conif./Decid. forest	1,480,415	Salt emergent	574
Developed lands		Coniferous forest	655,489	Mudflat	*358*
Sparse residential	*13,836*	**Wetlands**		Sand shore	*74*
Dense residential	*1,449*	Deciduous forested	44,893	Gravel shore	*301*
Urban/Industrial	*0*	Coniferous forested	348,504	Rock shore	*535*
Highways/Runways	*77*	Dead-forested	2,117	Shallow water	11,639
Forestlands		Decid. shrub-scrub	114,176	Open water	*15,964*
Clearcut	108,204	Conifer. shrub-scrub	12,809	**Other**	
Early regeneration	511,044	Dead shrub-scrub	95	Alpine tundra	*155*
Late regeneration	249,231	Fresh aquatic bed	*16*	Exposed rock/Talus	*271*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON RACCOON (*Procyon lotor*)

Element code: MAJE0201

ME-GAP code: PRLO

Order: Carnivora

Family: Procyonidae

Breeding range change: Stable

Game species: Yes

Population level: Common

Population trend: Unknown

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: Common Raccoons are most commonly associated with water within hardwood forests, but use a variety of forested and unforested areas, including active and abandoned farmlands and orchards. Wetlands are also readily used, including both forested and the edges of unforested wetlands. When food around human dwellings is available, raccoons readily use built-up areas at night, and occasionally even den in buildings occupied by people.

Specific habitats used: Natal den sites, generally in large, hollow trees, are needed to raise offspring and for protection in winter.

Comments:

Predicted habitat quantities:

COMMON RACCOON					Total in ha: 6,703,448
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	89,664	Fresh emergent	70,030
Abandoned field	17,465	Heavy partial cut	113,120	Peatland	46,625
Blueberry field	11,650	Deciduous forest	846,835	Wet meadow	16,634
Grassland	394,295	Decid./Conif. forest	1,019,865	Salt aquatic bed	*3,586*
Crops/Ground	87,796	Conif./Decid. forest	1,523,297	Salt emergent	5,020
Developed lands		Coniferous forest	692,798	Mudflat	4,484
Sparse residential	62,211	**Wetlands**		Sand shore	861
Dense residential	32,787	Deciduous forested	71,333	Gravel shore	3,426
Urban/Industrial	*809*	Coniferous forested	384,846	Rock shore	4,185
Highways/Runways	*623*	Dead-forested	2,679	Shallow water	14,066
Forestlands		Decid. shrub-scrub	134,893	Open water	257,083
Clearcut	101,883	Conifer. shrub-scrub	15,437	**Other**	
Early regeneration	432,980	Dead shrub-scrub	102	Alpine tundra	*250*
Late regeneration	238,430	Fresh aquatic bed	*94*	Exposed rock/Talus	*1,304*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN MARTEN (*Martes americana*)

Element code: MAJF0101

ME-GAP code: MAAM

Order: Carnivora

Family: Mustelidae

Breeding range change: Expanding

Game species: Yes

Population level: Uncommon

Population trend: Decreasing

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: In Maine, American Marten are at the southern limit of their range and have been hypothesized to be limited by high Fisher populations. Thus, forestlands of deep snow (≥ 48 cm/winter month) where Fisher populations are low or absent, are key marten habitats. Clearcuts and unforested wetlands are rarely used.

Specific habitats used: Tree and ground cavities are used for resting and natal dens. Dead-and-down woody material on the forest floor (currently common and widespread throughout Maine's forests) is used for foraging and winter access. Areas with few or no Fishers are needed. Marten need deep snow during winter to provide thermal cover and protection from Fishers, although neither need is fully documented.

Comments: Researchers have hypothesized that high Fisher abundances may limit the southern range limit of Marten, but this relation has not been proven.

Predicted habitat quantities:

AMERICAN MARTEN					**Total in ha:** 3,884,131
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	59,935	Fresh emergent	*8,928*
Abandoned field	2,174	Heavy partial cut	83,984	Peatland	26,974
Blueberry field	*9*	Deciduous forest	749,649	Wet meadow	7,680
Grassland	*13,554*	Decid./Conif. forest	763,401	Salt aquatic bed	*272*
Crops/Ground	*4,797*	Conif./Decid. forest	1,011,951	Salt emergent	*0*
Developed lands		Coniferous forest	491,117	Mudflat	*3*
Sparse residential	*3,303*	**Wetlands**		Sand shore	*0*
Dense residential	*238*	Deciduous forested	22,269	Gravel shore	*174*
Urban/Industrial	*0*	Coniferous forested	281,942	Rock shore	*292*
Highways/Runways	*18*	Dead-forested	1,202	Shallow water	*1,946*
Forestlands		Decid. shrub-scrub	73,610	Open water	*10,067*
Clearcut	*19,231*	Conifer. shrub-scrub	9,151	**Other**	
Early regeneration	*72,629*	Dead shrub-scrub	45	Alpine tundra	*126*
Late regeneration	163,422	Fresh aquatic bed	*4*	Exposed rock/Talus	*36*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

FISHER (*Martes pennanti*)

Element code: MAJF0102

ME-GAP code: MAPE

Order: Carnivora

Family: Mustelidae

Breeding range change: Expanding

Game species: Yes

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: Fishers inhabit all forest ages and types but tend to avoid recent clearcuts and other non-forested areas. In low snowfall areas (< 48 cm per winter month), Fishers use forestlands interspersed with abandoned farmlands and other bushy habitats, including forested wetlands. In contrast, in areas of deep snow, Fishers use a high percentage of closed-canopy coniferous forests. Forestlands in low snowfall landscapes interspersed with many ages and types of forests are of higher value than less diverse forestlands, or landscapes in deep-snow environments.

Specific habitats used: Hollow trees for natal dens, and a mixture of ground dens and tree cavities for winter shelter.

Comments: Researchers have hypothesized that the low abundance of Fishers in northern verses southern Maine is due to regular, deep snows (but the relation has not been proven). Forested areas in the eastern-most tip of Maine are now (1998) occupied by Fishers.

Predicted habitat quantities:

FISHER					**Total in ha:** 6,168,689
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	95,227	Fresh emergent	61,724
Abandoned field	9,244	Heavy partial cut	127,228	Peatland	41,478
Blueberry field	*860*	Deciduous forest	1,217,321	Wet meadow	14,471
Grassland	*65,075*	Decid./Conif. forest	1,240,485	Salt aquatic bed	*1,040*
Crops/Ground	*11,372*	Conif./Decid. forest	1,606,127	Salt emergent	1,387
Developed lands		Coniferous forest	721,085	Mudflat	2,420
Sparse residential	*9,474*	**Wetlands**		Sand shore	475
Dense residential	*2,004*	Deciduous forested	64,692	Gravel shore	*255*
Urban/Industrial	*13*	Coniferous forested	357,903	Rock shore	*471*
Highways/Runways	*87*	Dead-forested	2,368	Shallow water	13,082
Forestlands		Decid. shrub-scrub	119,684	Open water	*18,196*
Clearcut	*26,770*	Conifer. shrub-scrub	13,956	**Other**	
Early regeneration	*85,696*	Dead shrub-scrub	87	Alpine tundra	*123*
Late regeneration	236,571	Fresh aquatic bed	*29*	Exposed rock/Talus	*212*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

ERMINE (*Mustela erminea*)

Element code: MAJF0201

ME-GAP code: MUER

Order: Carnivora

Family: Mustelidae

Breeding range change: Stable

Game species: No

Population level: Common

Population trend: Unknown

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Ermine are habitat generalists, but are most common in woods with dense cover available, primarily in early successional stages. Coniferous and mixed stands are used somewhat more than deciduous stands. Open forests with thick brush, stone fences, or slash piles, and near open water, are good Ermine habitats. The edges of wetlands and water bodies with forest nearby are used, as are scrub-shrub wetlands. Unlike the Long-tailed Weasel, the Ermine does not appear to be limited by the amount of snow accumulation, and the species will hunt under the snow. The southern limit of Ermine may be determined, in part or completely, by the occurrence of Long-tailed Weasels, which may out compete Ermine and/or prey upon them.

Specific habitats used: No microsite-specific habitat requirements were found.

Comments: Ermine change color through the seasons. They are brown in the spring, summer, and fall, and mostly white during the winter when snow is present.

Predicted habitat quantities:

ERMINE					Total in ha: 7,582,538
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	108,601	Fresh emergent	66,517
Abandoned field	17,724	Heavy partial cut	146,595	Peatland	45,090
Blueberry field	*7,066*	Deciduous forest	1,251,943	Wet meadow	14,967
Grassland	423,742	Decid./Conif. forest	1,303,986	Salt aquatic bed	*3,210*
Crops/Ground	*52,238*	Conif./Decid. forest	1,731,728	Salt emergent	1,375
Developed lands		Coniferous forest	762,581	Mudflat	2,224
Sparse residential	*43,303*	**Wetlands**		Sand shore	425
Dense residential	*10,266*	Deciduous forested	69,356	Gravel shore	2,635
Urban/Industrial	*301*	Coniferous forested	378,086	Rock shore	2,982
Highways/Runways	*285*	Dead-forested	2,582	Shallow water	*9,880*
Forestlands		Decid. shrub-scrub	129,619	Open water	*67,503*
Clearcut	118,970	Conifer. shrub-scrub	14,736	**Other**	
Early regeneration	513,537	Dead shrub-scrub	105	Alpine tundra	1,884
Late regeneration	275,113	Fresh aquatic bed	*77*	Exposed rock/Talus	*1,305*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

LONG-TAILED WEASEL (*Mustela frenata*)

Element code: MAJF0203

ME-GAP code: MUFR

Order: Carnivora

Family: Mustelidae

Breeding range change: Stable

Game species: No

Population level: Uncommon

Population trend: Unknown

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Adequate

General habitats used: Long-tailed Weasels are most common in open habitats such as meadows, grasslands, brushy thickets, fence rows, and bogs. Usually habitat occupied by Long-tailed Weasels is near water. Open forests will be used, with deciduous stands selected more often than coniferous stands. Dense forests are avoided by Long-tailed Weasels.

Specific habitats used: No special habitat requirements were determine.

Comments: Researchers have theorized that the northern range limit of Long-tailed Weasels appears to be determined by snowfall accumulation (although all of Maine is within their range), and that they limit the southern range limit of Ermine (*Mustela erminea*).

Predicted habitat quantities:

LONG-TAILED WEASEL					Total in ha: 7,693,297
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	108,513	Fresh emergent	67,448
Abandoned field	18,508	Heavy partial cut	148,785	Peatland	45,337
Blueberry field	*7,252*	Deciduous forest	1,261,943	Wet meadow	14,958
Grassland	441,731	Decid./Conif. forest	1,309,954	Salt aquatic bed	*3,457*
Crops/Ground	*56,672*	Conif./Decid. forest	1,746,302	Salt emergent	1,441
Developed lands		Coniferous forest	769,033	Mudflat	2,345
Sparse residential	63,091	**Wetlands**		Sand shore	468
Dense residential	*11,724*	Deciduous forested	70,558	Gravel shore	2,668
Urban/Industrial	*370*	Coniferous forested	383,742	Rock shore	3,058
Highways/Runways	538	Dead-forested	2,641	Shallow water	*10,183*
Forestlands		Decid. shrub-scrub	131,921	Open water	*69,628*
Clearcut	123,273	Conifer. shrub-scrub	15,005	**Other**	
Early regeneration	518,540	Dead shrub-scrub	111	Alpine tundra	*443*
Late regeneration	280,402	Fresh aquatic bed	*79*	Exposed rock/Talus	*1,175*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MINK (*Mustela vison*)

Element code: MAJF0205 **ME-GAP code:** MUVI

Order: Carnivora **Family:** Mustelidae

Breeding range change: Stable **Game species**: Yes

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Adequate

General habitats used: Mink are semi-aquatic predators occurring in and adjacent to rivers, streams, ponds, lakes, and wetlands. Mink readily use large, emergent wetlands, and pond-wetland complexes created by beaver. These mammals are most common near forested wetlands with nearby thickets, downed logs, or piles of logs and rocks. Mink eat a variety of animals, ranging from fish and frogs to mice and muskrats.

Specific habitats used: No special habitat requirements were identified, although a variety of dens (for example, tree cavities, and holes in the ground) are used to raise young and provide protection from weather.

Comments:

Predicted habitat quantities:

MINK					**Total in ha:** 2,893,914
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	34,255	Fresh emergent	65,133
Abandoned field	*4,949*	Heavy partial cut	*31,055*	Peatland	44,386
Blueberry field	*2,539*	Deciduous forest	180,440	Wet meadow	15,646
Grassland	*72,672*	Decid./Conif. forest	316,913	Salt aquatic bed	3,032
Crops/Ground	*15,134*	Conif./Decid. forest	674,629	Salt emergent	3,016
Developed lands		Coniferous forest	368,591	Mudflat	1,951
Sparse residential	*14,049*	**Wetlands**		Sand shore	354
Dense residential	*3,452*	Deciduous forested	64,338	Gravel shore	3,355
Urban/Industrial	*84*	Coniferous forested	366,945	Rock shore	4,000
Highways/Runways	*131*	Dead-forested	2,541	Shallow water	12,887
Forestlands		Decid. shrub-scrub	126,346	Open water	162,228
Clearcut	*29,537*	Conifer. shrub-scrub	14,430	**Other**	
Early regeneration	160,322	Dead shrub-scrub	51	Alpine tundra	*105*
Late regeneration	93,672	Fresh aquatic bed	115	Exposed rock/Talus	626

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

STRIPED SKUNK (*Mephitis mephitis*)

Element code: MAJF0601 **ME-GAP code:** MEMP

Order: Carnivora **Family:** Mustelidae

Breeding range change: Stable **Game species**: Yes

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: Striped Skunks commonly occur in farmland or abandoned farms, open woods, meadows, grasslands, and open areas near water. Weedy thickets and fencerows are selected by skunks. Striped Skunks are adapted to human disturbance, occurring in residential areas around garbage dumps, for example.

Specific habitats used: No special habitat needs were identified for Striped Skunks, although ground dens are regularly used for raising young and avoiding cold weather.

Comments: This species is relatively new to Maine, first appearing in the state in the 1940-50's.

Predicted habitat quantities:

STRIPED SKUNK					**Total in ha:** 7,880,914
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	112,903	Fresh emergent	67,957
Abandoned field	19,172	Heavy partial cut	151,195	Peatland	45,595
Blueberry field	12,918	Deciduous forest	1,272,879	Wet meadow	15,360
Grassland	458,362	Decid./Conif. forest	1,333,212	Salt aquatic bed	*3,486*
Crops/Ground	107,505	Conif./Decid. forest	1,764,920	Salt emergent	*1,328*
Developed lands		Coniferous forest	772,107	Mudflat	2,392
Sparse residential	65,010	**Wetlands**		Sand shore	467
Dense residential	33,475	Deciduous forested	70,630	Gravel shore	2,655
Urban/Industrial	*781*	Coniferous forested	383,679	Rock shore	3,041
Highways/Runways	743	Dead-forested	2,654	Shallow water	*10,363*
Forestlands		Decid. shrub-scrub	131,518	Open water	*71,825*
Clearcut	125,736	Conifer. shrub-scrub	14,881	**Other**	
Early regeneration	531,269	Dead shrub-scrub	109	Alpine tundra	*449*
Late regeneration	288,871	Fresh aquatic bed	*81*	Exposed rock/Talus	*1,386*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN RIVER OTTER (*Lutra canadensis*)

Element code: MAJF0801 **ME-GAP code:** LUCA

Order: Carnivora **Family:** Mustelidae

Breeding range change: Stable **Game species**: Yes

Population level: Common **Population trend**: Unknown

Heritage ranks: G5 . . S5 **Federally listed**: No

State listed: No **Knowledge**: Good

General habitats used: Northern River Otters inhabit a variety of running and standing waters. In terms of abundance, larger river and wetland complexes in low gradient areas, especially complexes including recently created beaver ponds, are especially productive in terms of producing a variety of foods and providing isolation and den sites for otters. In general, urban areas are avoided, but on Mount Desert Island, there is evidence that Northern River Otters regularly crossed residential yards when traveling between inland ponds and the ocean.

Specific habitats used: Natal dens and rest sites, especially abandoned beaver houses and bank dens, are used by Northern River Otter.

Comments:

Predicted habitat quantities:

NORTHERN RIVER OTTER					Total in ha: 2,813,220
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*23,582*	Fresh emergent	61,296
Abandoned field	*4,408*	Heavy partial cut	*25,122*	Peatland	43,307
Blueberry field	*2,034*	Deciduous forest	177,715	Wet meadow	14,879
Grassland	*70,425*	Decid./Conif. forest	308,196	Salt aquatic bed	5,700
Crops/Ground	*13,926*	Conif./Decid. forest	647,789	Salt emergent	6,926
Developed lands		Coniferous forest	355,984	Mudflat	16,488
Sparse residential	*12,819*	**Wetlands**		Sand shore	844
Dense residential	*3,487*	Deciduous forested	61,555	Gravel shore	3,355
Urban/Industrial	*131*	Coniferous forested	342,730	Rock shore	4,122
Highways/Runways	*124*	Dead-forested	2,374	Shallow water	12,732
Forestlands		Decid. shrub-scrub	118,015	Open water	298,435
Clearcut	*24,072*	Conifer. shrub-scrub	13,728	**Other**	
Early regeneration	*76,790*	Dead shrub-scrub	50	Alpine tundra	*80*
Late regeneration	*59,602*	Fresh aquatic bed	112	Exposed rock/Talus	*287*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

LYNX (*Lynx canadensis*)

Element code: MAJH0301

ME-GAP code: FELY

Order: Carnivora

Family: Felidae

Breeding range change: Unknown

Game species: No

Population level: Rare

Population trend: Unknown

Heritage ranks: G5 . . S2

Federally listed: No; see comments below

State listed: No

Knowledge: Adequate

General habitats used: The Lynx preys mainly on Snowshoe Hares and is well adapted for hunting in deep, soft snow. Lynx use extensive forestlands and are susceptible to over trapping. Openings within forest stands that provide large brushy areas (e.g., peatland complexes, and regenerating clearcuts) and high hare densities are important foraging habitats. There is evidence suggesting that Bobcat out compete Lynx where snow is not deep.

Specific habitats used: Sites occupied by Lynx must have high Snowshoe Hare populations and perhaps deep snow accumulation (to limit competition with Bobcats and possibly Coyotes).

Comments: Currently (1998) this species is being considered for listing as a threatened species by the U.S. Fish and Wildlife Service.

Predicted habitat quantities:

LYNX					**Total in ha:** 1,659,713
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	27,990	Fresh emergent	*2,878*
Abandoned field	139	Heavy partial cut	41,746	Peatland	7,606
Blueberry field	*0*	Deciduous forest	293,751	Wet meadow	*439*
Grassland	*727*	Decid./Conif. forest	319,989	Salt aquatic bed	*0*
Crops/Ground	*338*	Conif./Decid. forest	291,701	Salt emergent	*0*
Developed lands		Coniferous forest	186,660	Mudflat	39
Sparse residential	*241*	**Wetlands**		Sand shore	0
Dense residential	*26*	Deciduous forested	3,102	Gravel shore	*126*
Urban/Industrial	*0*	Coniferous forested	82,149	Rock shore	*120*
Highways/Runways	*0*	Dead-forested	262	Shallow water	*559*
Forestlands		Decid. shrub-scrub	20,378	Open water	*2,517*
Clearcut	38,121	Conifer. shrub-scrub	2,147	**Other**	
Early regeneration	243,815	Dead shrub-scrub	10	Alpine tundra	194
Late regeneration	91,703	Fresh aquatic bed	*0*	Exposed rock/Talus	243

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BOBCAT (*Lynx rufus*)

Element code: MAJH0302

ME-GAP code: FERU

Order: Carnivora

Family: Felidae

Breeding range change: Stable

Game species: Yes

Population level: Common

Population trend: Variable; see comments below.

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: Bobcats use a variety of forested and unforested habitats, but in general do best in low snowfall environments with an abundance of brushy thickets supporting hares or rabbits. Forested wetlands, edges of unforested wetlands, abandoned and active farmlands, and regeneration stands are all used. In deep snow environments, closed-canopy conifer stands are frequently used during the winter (also provides winter cover for deer, a potential prey of Bobcat). In Maine, Bobcats are at the northern limit of their range and, in addition to snowfall limiting their distribution, evidence suggests that competition with Coyotes limit Bobcat populations.

Specific habitats used: Areas without deep snow and high prey densities are used by Bobcat.

Comments: Bobcat populations were decreasing until recent years, as reflected in annual harvests. These declines may have been associated with the expansion of the Coyotes range, harsh winters, and high harvests. Apparently warmer winters and changes in trapping seasons have stabilized the population since the late 1980's to early 1990's.

Predicted habitat quantities:

BOBCAT					**Total in ha:** 6,572,436
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	97,299	Fresh emergent	*15,499*
Abandoned field	16,092	Heavy partial cut	137,645	Peatland	43,066
Blueberry field	*2,505*	Deciduous forest	1,173,000	Wet meadow	13,421
Grassland	288,008	Decid./Conif. forest	1,126,166	Salt aquatic bed	*1,006*
Crops/Ground	*19,347*	Conif./Decid. forest	1,504,974	Salt emergent	*271*
Developed lands		Coniferous forest	644,237	Mudflat	7,143
Sparse residential	41,384	**Wetlands**		Sand shore	437
Dense residential	*2,218*	Deciduous forested	45,024	Gravel shore	3,197
Urban/Industrial	*1*	Coniferous forested	358,423	Rock shore	3,207
Highways/Runways	*159*	Dead-forested	2,110	Shallow water	*2,981*
Forestlands		Decid. shrub-scrub	116,633	Open water	*16,771*
Clearcut	108,781	Conifer. shrub-scrub	13,172	**Other**	
Early regeneration	511,710	Dead shrub-scrub	112	Alpine tundra	*160*
Late regeneration	256,094	Fresh aquatic bed	*12*	Exposed rock/Talus	*171*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WHITE-TAILED DEER (*Odocoileus virginianus*)

Element code: MALC0202

ME-GAP code: ODVI

Order: Artiodactyla

Family: Cervidae

Breeding range change: Stable

Game species: Yes

Population level: Common

Population trend: Increasing (esp. southern and central Maine)

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: White-tailed Deer use forest edges, including forested wetlands, grassy areas within forests, and the edges of bushy openings such as found in abandoned farmlands. In non-snow seasons, forest edges are heavily used, but in winter closed-canopy conifer stands on south facing slopes are heavily used. Deer live in close proximity to humans, often simply by becoming more nocturnal when feeding and resting in wooded thickets during daylight hours.

Specific habitats used: Closed-canopy conifer stands, especially in the deep snow environments of western and northern Maine, are required during winter. South-facing slopes are widely used by White-tailed Deer during winter in southern Maine.

Comments:

Predicted habitat quantities:

WHITE-TAILED DEER					**Total in ha:** 7,660,696
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	108,249	Fresh emergent	*44,720*
Abandoned field	18,127	Heavy partial cut	145,627	Peatland	44,918
Blueberry field	*6,989*	Deciduous forest	1,253,822	Wet meadow	*8,922*
Grassland	447,462	Decid./Conif. forest	1,308,331	Salt aquatic bed	*3,392*
Crops/Ground	105,694	Conif./Decid. forest	1,727,191	Salt emergent	*1,273*
Developed lands		Coniferous forest	756,151	Mudflat	2,334
Sparse residential	63,097	**Wetlands**		Sand shore	458
Dense residential	32,961	Deciduous forested	68,622	Gravel shore	2,525
Urban/Industrial	*774*	Coniferous forested	376,495	Rock shore	2,969
Highways/Runways	719	Dead-forested	2,505	Shallow water	*9,355*
Forestlands		Decid. shrub-scrub	125,277	Open water	*65,342*
Clearcut	119,889	Conifer. shrub-scrub	14,287	**Other**	
Early regeneration	514,067	Dead shrub-scrub	108	Alpine tundra	*432*
Late regeneration	276,199	Fresh aquatic bed	*71*	Exposed rock/Talus	*1,340*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MOOSE (*Alces alces*)

Element code: MALC0301

ME-GAP code: ALAL

Order: Artiodactyla

Family: Cervidae

Breeding range change: Stable

Game species: Yes

Population level: Common

Population trend: Stable in core; increase on range edges

Heritage ranks: G5 . . S5

Federally listed: No

State listed: No

Knowledge: Good

General habitats used: Moose use extensive brush lands interspersed with wetlands and water that provide a variety of winter and summer plant foods. Male and female Moose will use different habitats during the summer, with males selecting mixed stands, and females selecting coniferous stands. Thickets are used for escape cover, and for protection from severe weather. Pole-size, regenerating stands, and clearcuts are used for foraging, especially for winter.

Specific habitats used: In Maine, aquatic plants are readily eaten by Moose during the summer (especially bulls growing antlers and cows with offspring).

Comments: Maine's Moose population has increased due to increased clearcutting in the late 1980's and early 1990's. Harvests of Moose have been increasing because of an increased number of permits issued.

Predicted habitat quantities:

MOOSE					**Total in ha:** 6,025,183
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	94,418	Fresh emergent	56,116
Abandoned field	15,286	Heavy partial cut	133,273	Peatland	40,451
Blueberry field	*2,615*	Deciduous forest	1,100,790	Wet meadow	13,949
Grassland	240,211	Decid./Conif. forest	1,090,274	Salt aquatic bed	1,980
Crops/Ground	*16,733*	Conif./Decid. forest	1,460,821	Salt emergent	556
Developed lands		Coniferous forest	618,868	Mudflat	1,430
Sparse residential	*12,941*	**Wetlands**		Sand shore	154
Dense residential	*1,775*	Deciduous forested	42,982	Gravel shore	3,009
Urban/Industrial	*1*	Coniferous forested	*66,564*	Rock shore	3,022
Highways/Runways	*79*	Dead-forested	1,981	Shallow water	11,295
Forestlands		Decid. shrub-scrub	110,782	Open water	*16,638*
Clearcut	105,187	Conifer. shrub-scrub	12,015	**Other**	
Early regeneration	500,783	Dead shrub-scrub	99	Alpine tundra	*154*
Late regeneration	247,746	Fresh aquatic bed	49	Exposed rock/Talus	*154*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

Appendix 1. Literature reviewed for determining the habitat relations of amphibians and reptiles in Maine.

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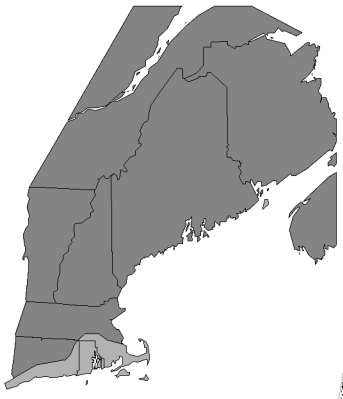
Appendix 3: Predicted Distribution Maps for Amphibians, Reptiles, and Mammals of Maine

Blue-spotted salamander

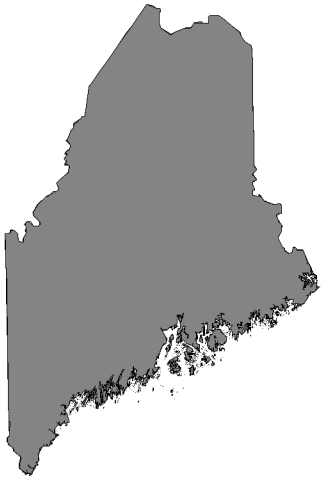
AMLA

June 1998



Regional range

Predicted distribution

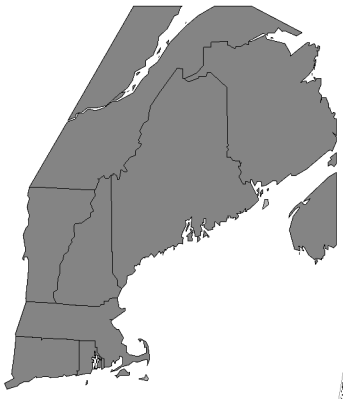


Maine range

Spotted salamander

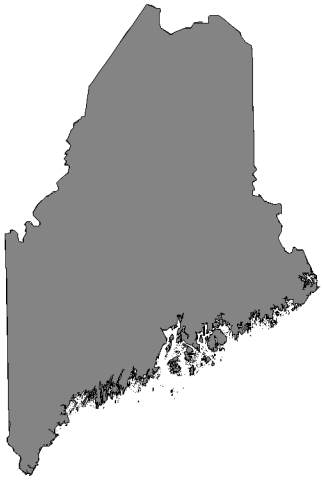
AMMA

June 1998



Regional range

Predicted distribution

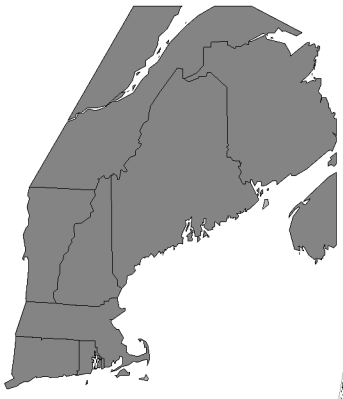


Maine range

Eastern newt

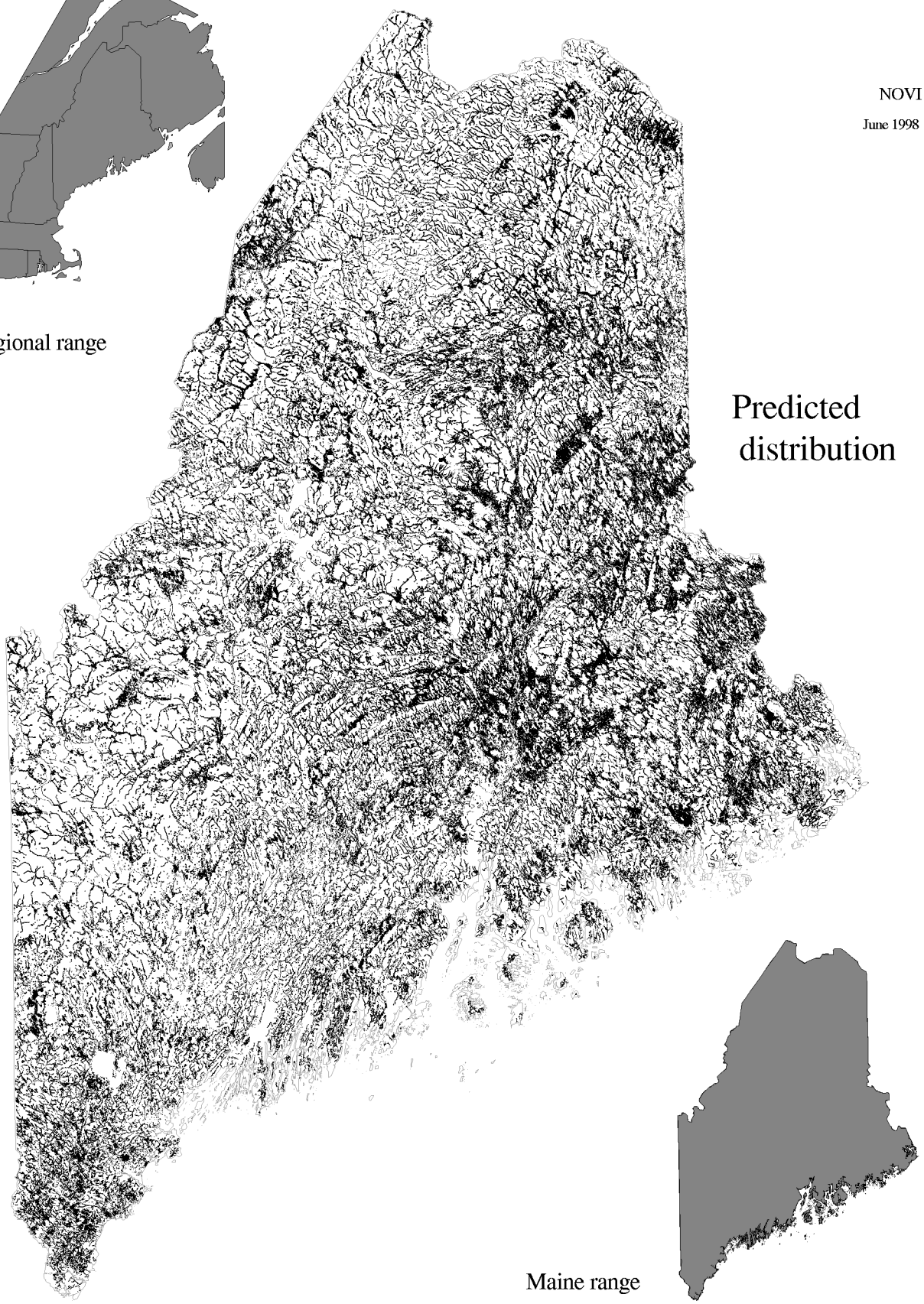
NOVI

June 1998



Regional range

Predicted distribution

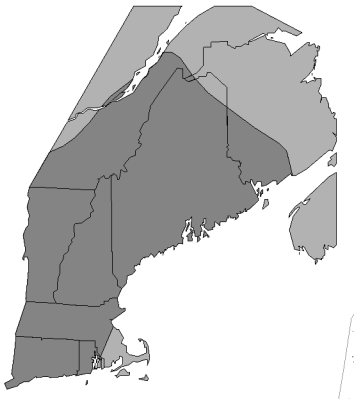


Maine range

Northern Dusky salamander

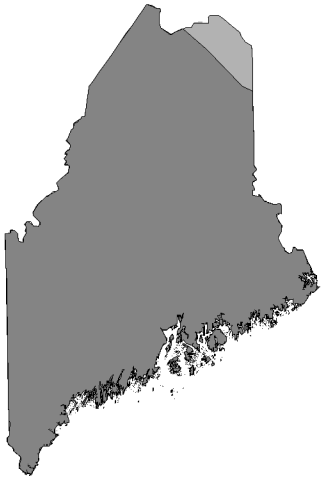
DEFU

June 1998



Regional range

Predicted distribution

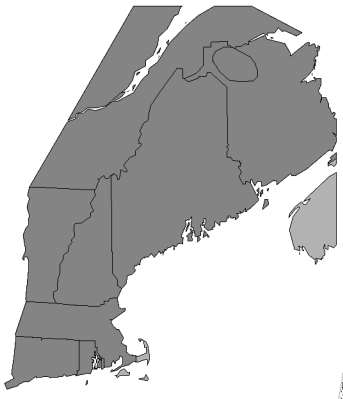


Maine range

Northern Two-lined salamander

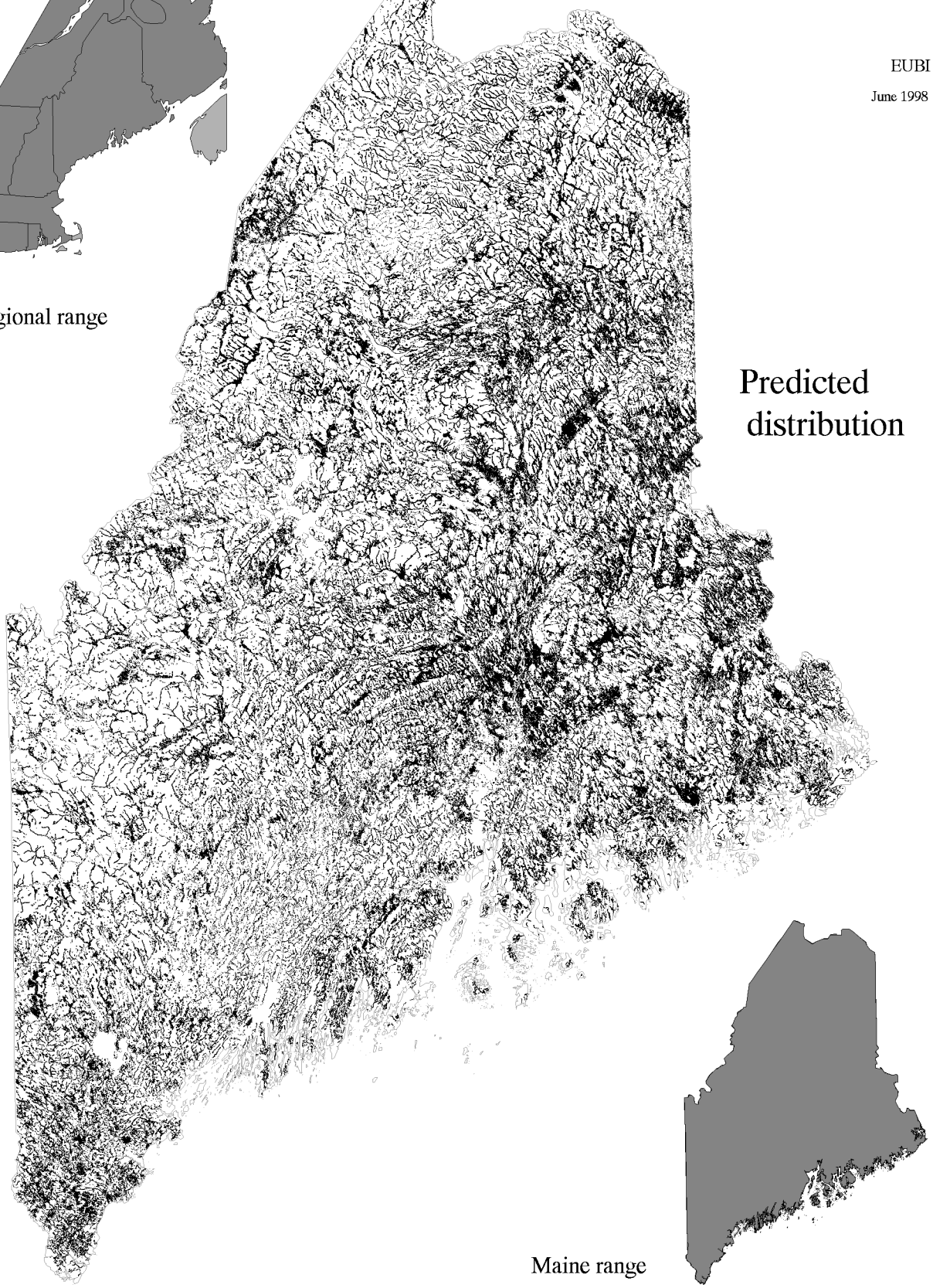
EUBI

June 1998



Regional range

Predicted distribution

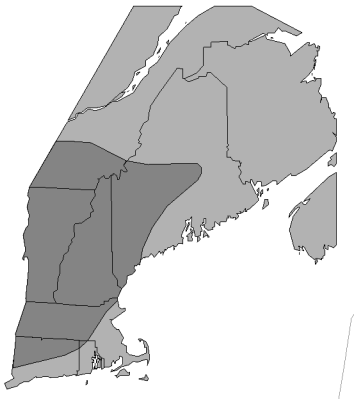


Maine range

Spring salamander

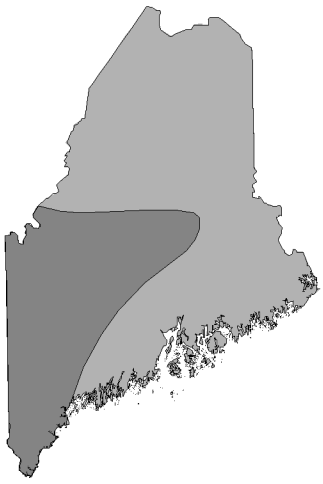
GYPO

June 1998



Regional range

Predicted distribution

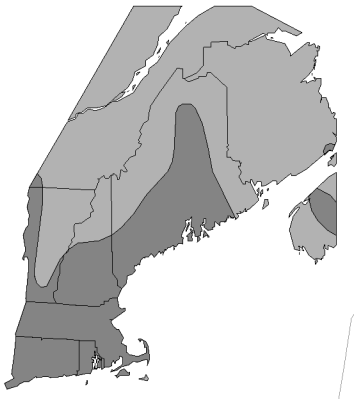


Maine range

Four-toed salamander

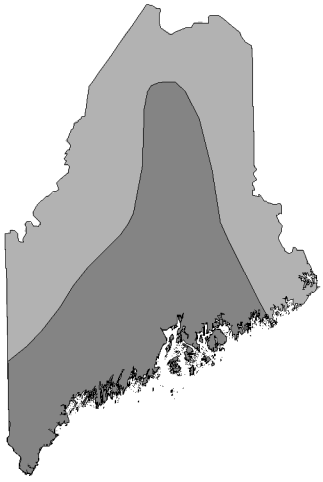
HESC

June 1998



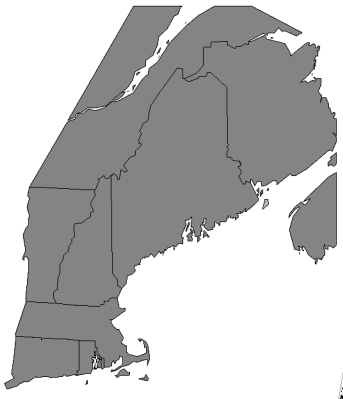
Regional range

Predicted distribution



Maine range

Northern Redback Salamander

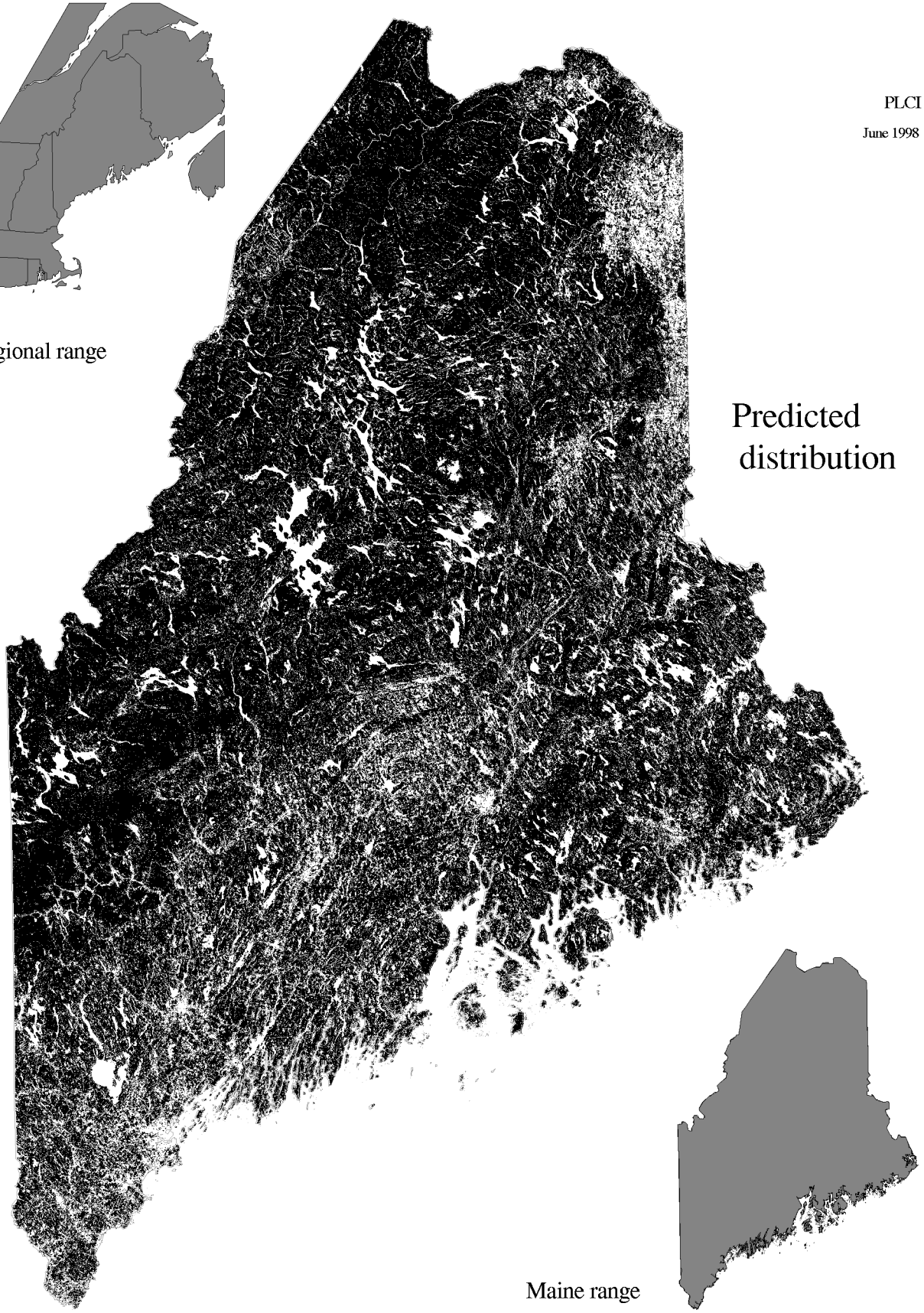


Regional range

PLCI

June 1998

Predicted distribution

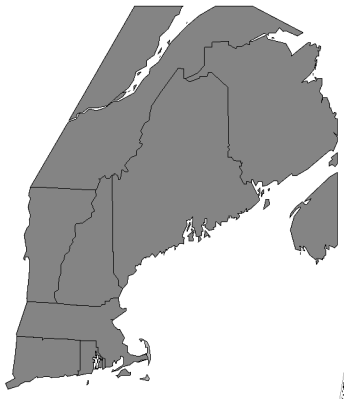


Maine range

American toad

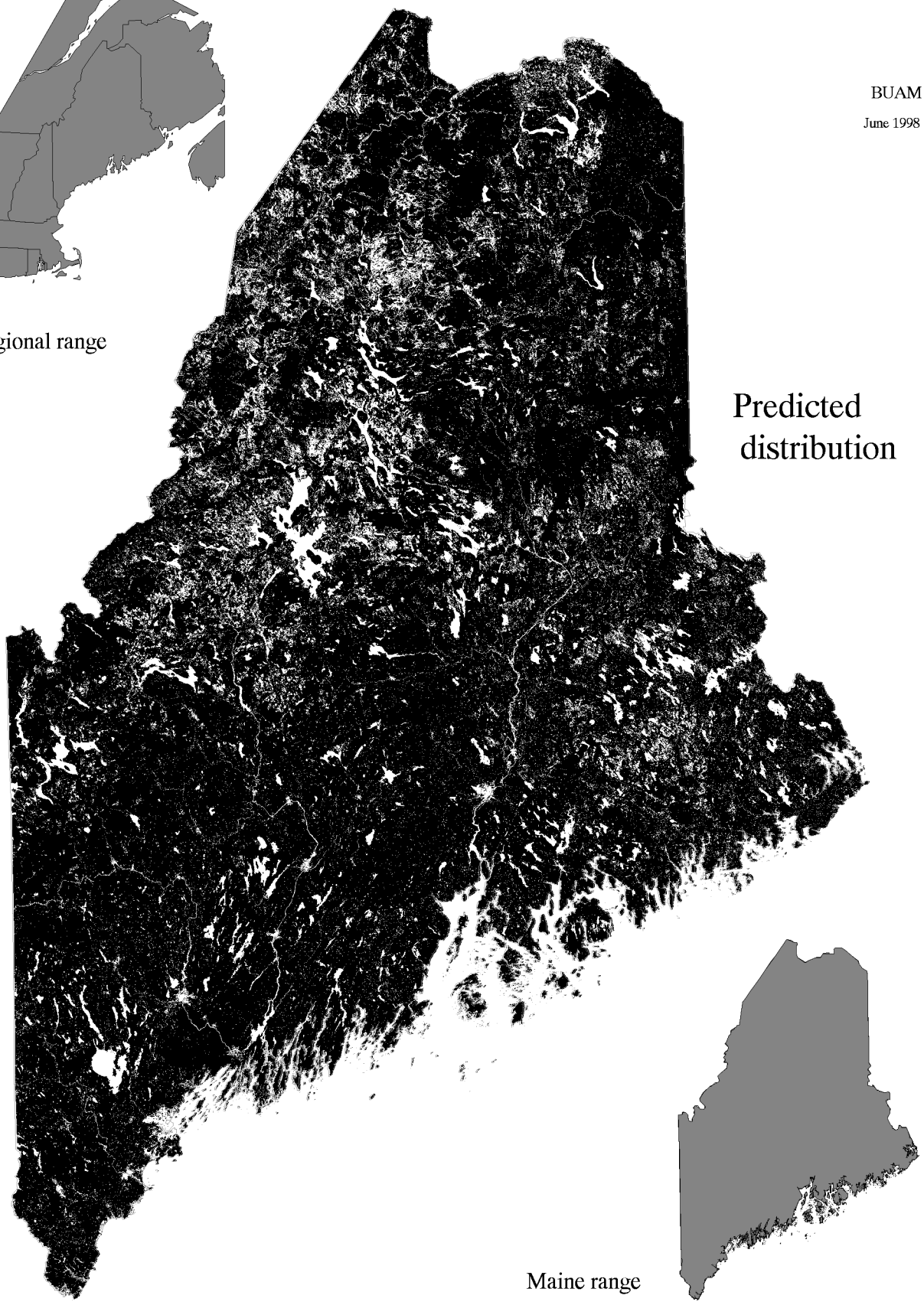
BUAM

June 1998



Regional range

Predicted distribution

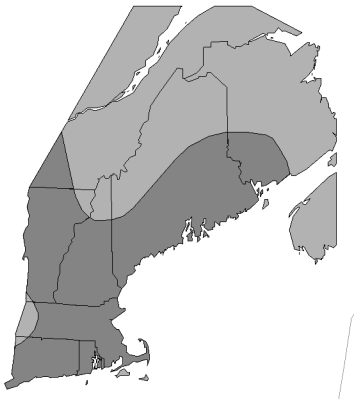


Maine range

Gray treefrog

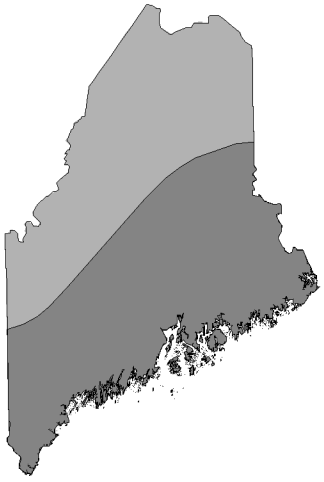
HYVE

June 1998



Regional range

Predicted distribution

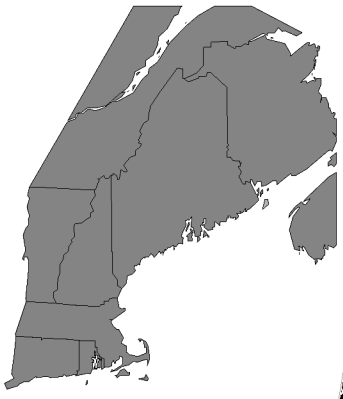


Maine range

Spring peeper

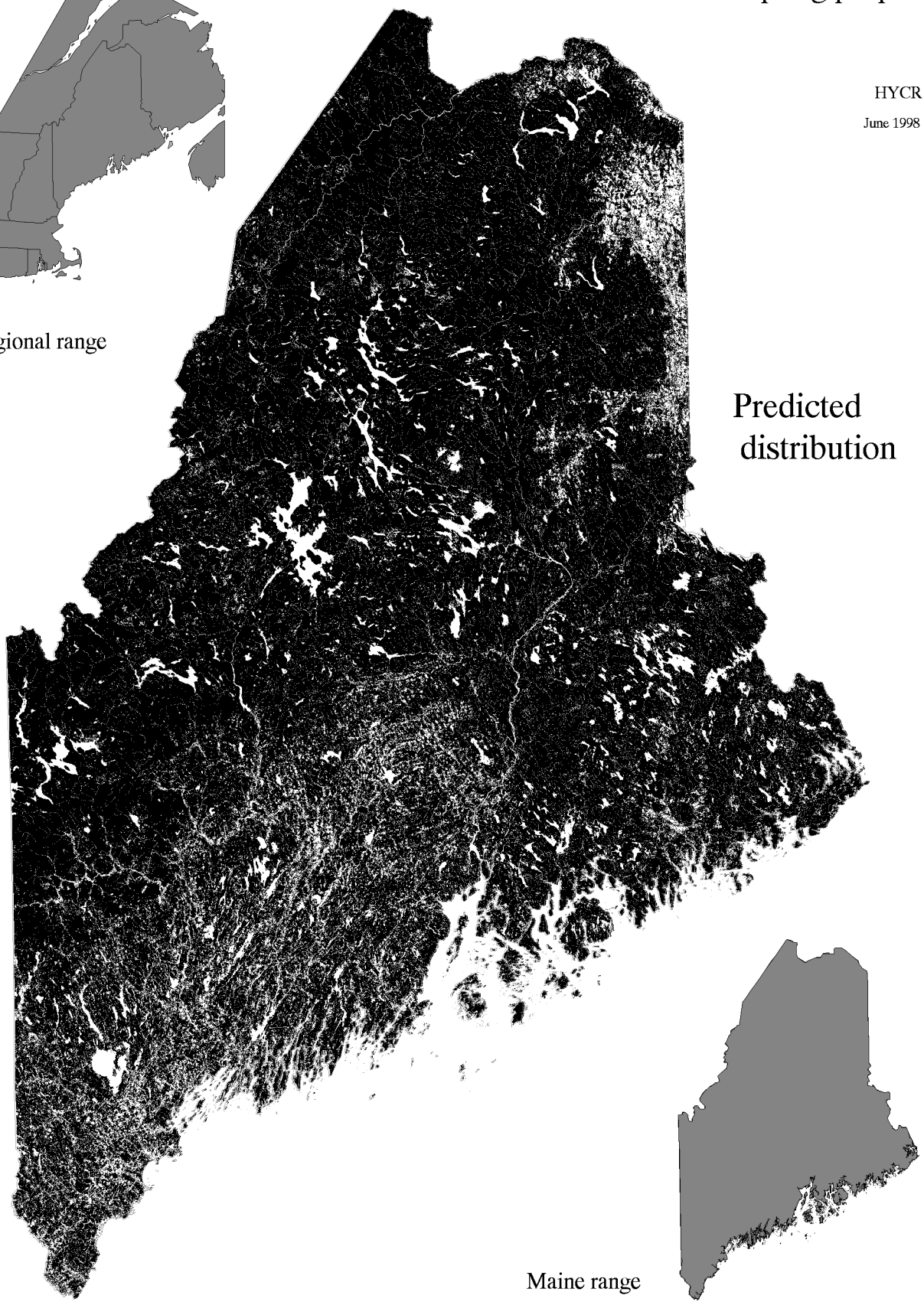
HYCR

June 1998



Regional range

Predicted distribution

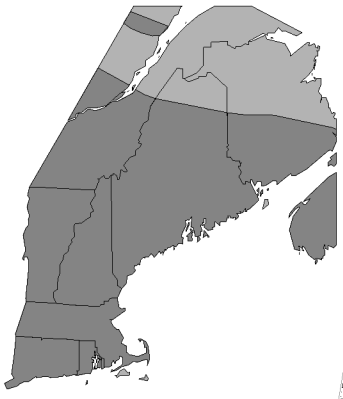


Maine range

Bullfrog

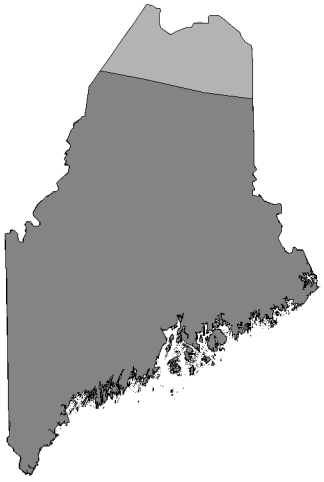
RACA

June 1998



Regional range

Predicted distribution

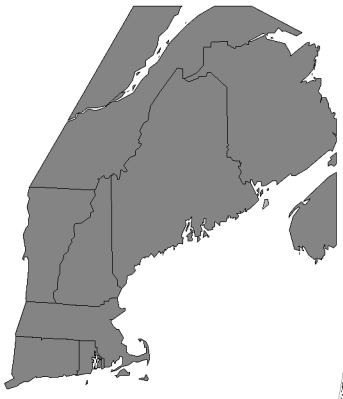


Maine range

Green frog

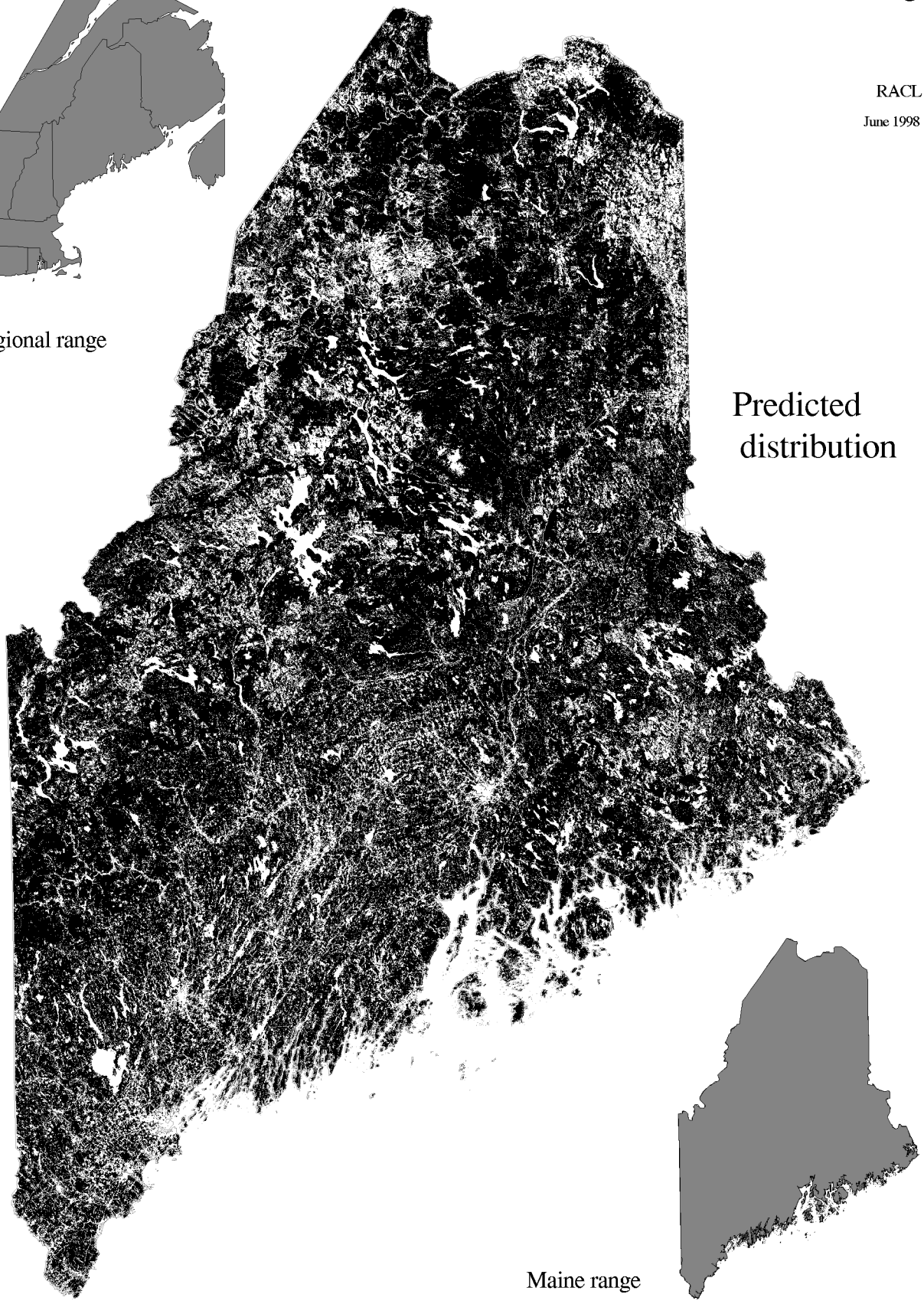
RACL

June 1998



Regional range

Predicted distribution

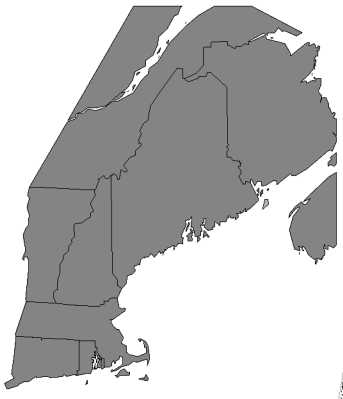


Maine range

Green frog

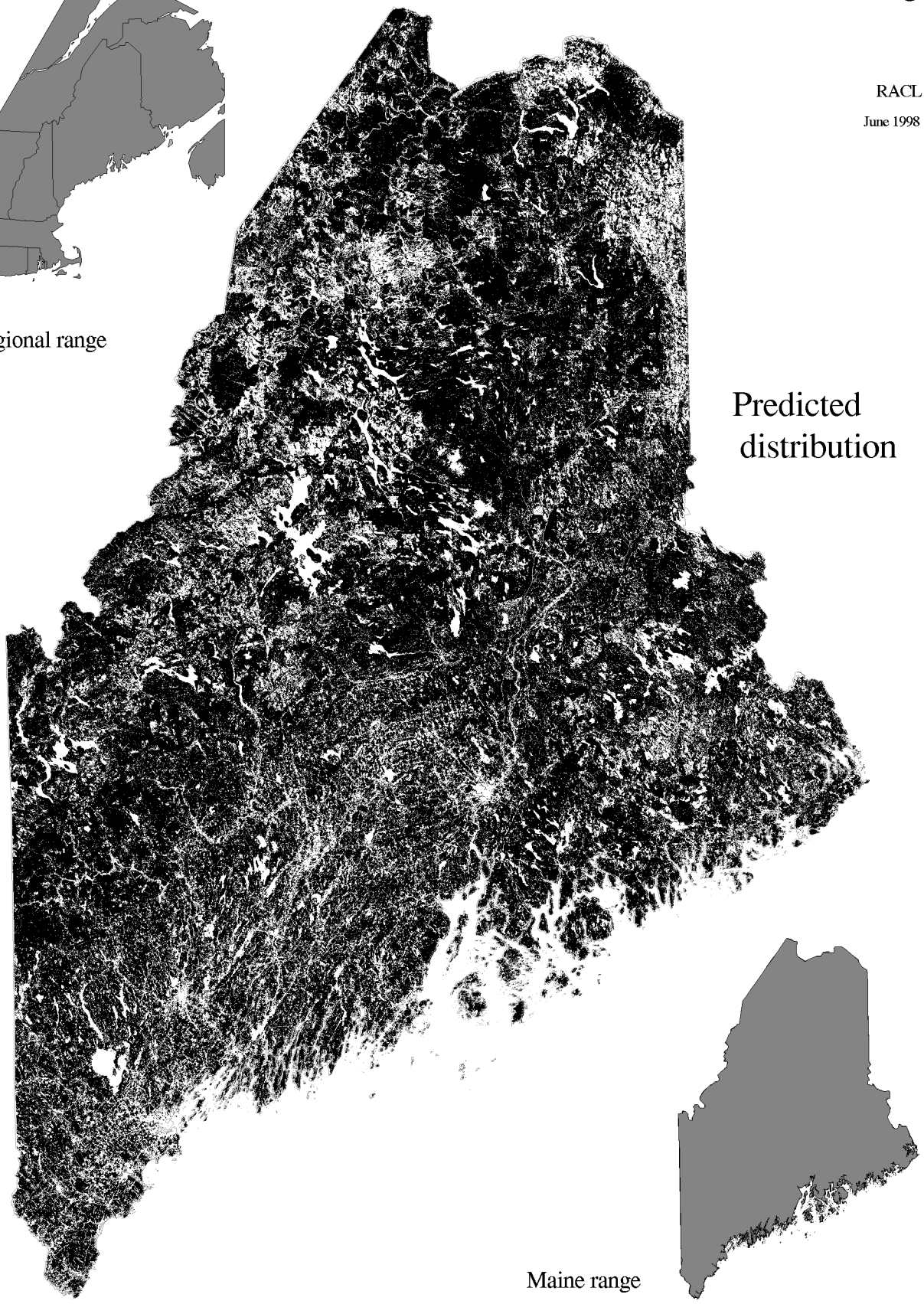
RACL

June 1998



Regional range

Predicted distribution

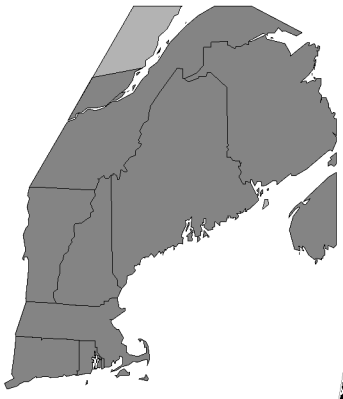


Maine range

Pickerel frog

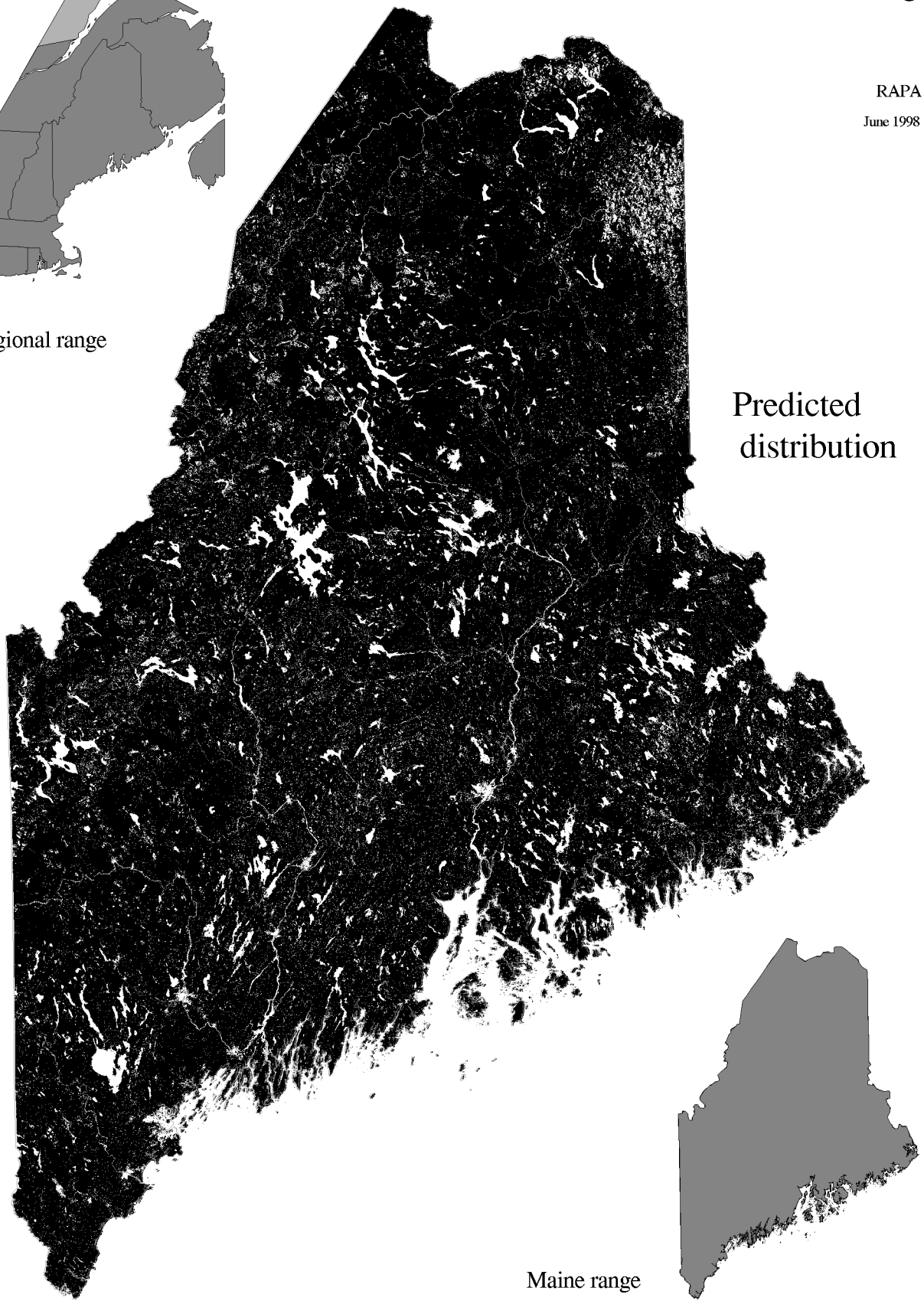
RAPA

June 1998



Regional range

Predicted distribution

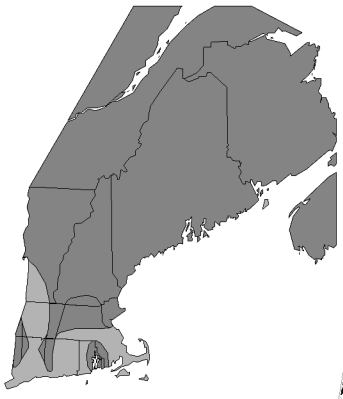


Maine range

Northern leopard frog

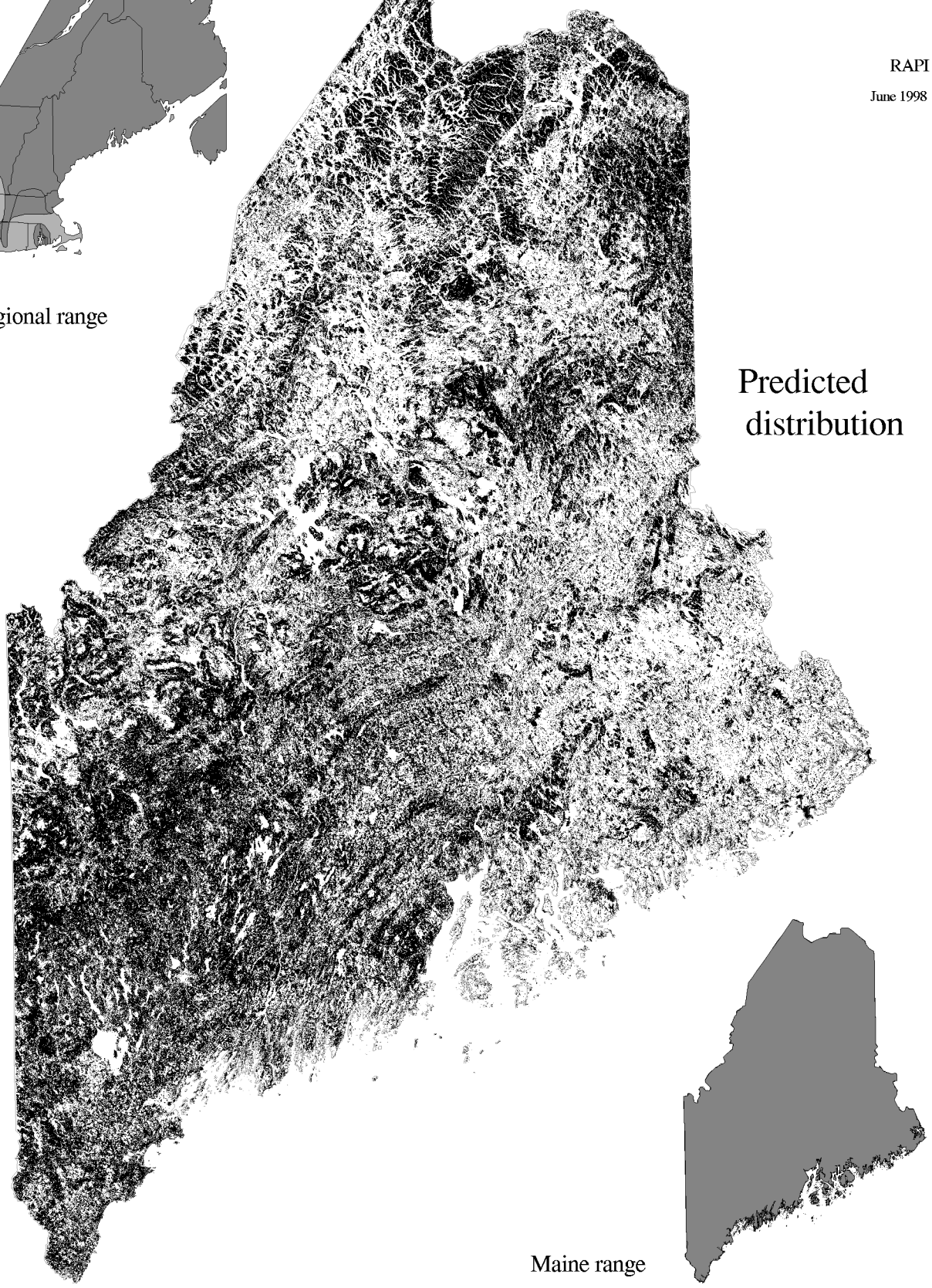
RAPI

June 1998



Regional range

Predicted distribution

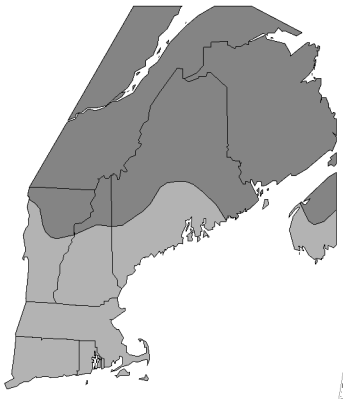


Maine range

Mink frog

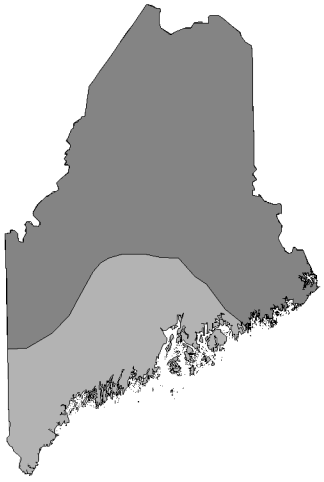
RASE

June 1998



Regional range

Predicted distribution

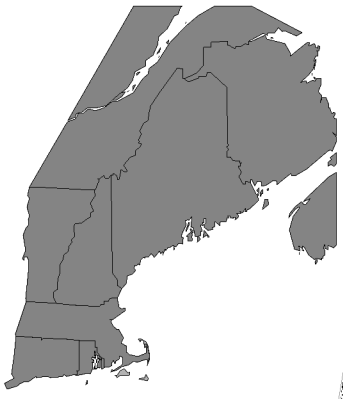


Maine range

Wood frog

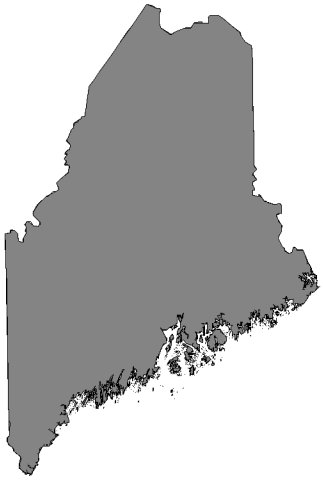
RASY

June 1998



Regional range

Predicted distribution

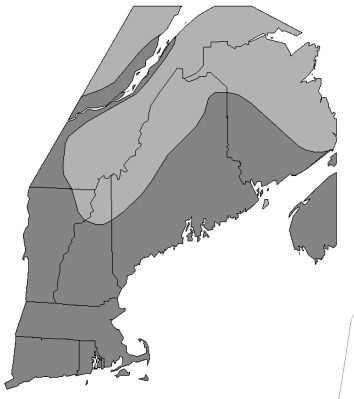


Maine range

Common snapping turtle

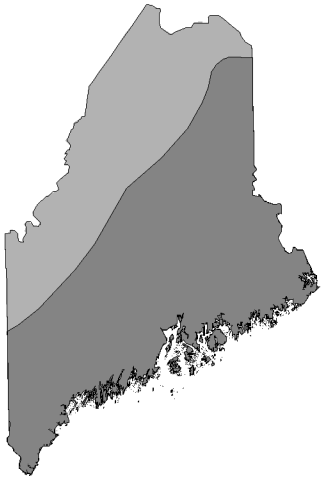
CHSE

June 1998



Regional range

Predicted distribution

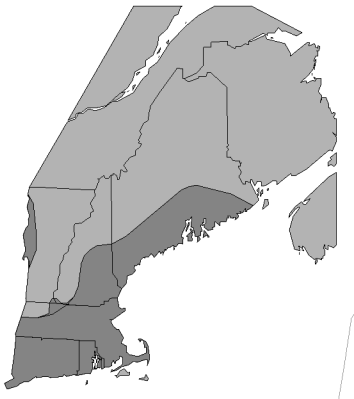


Maine range

Common musk turtle

STOD

June 1998



Regional range

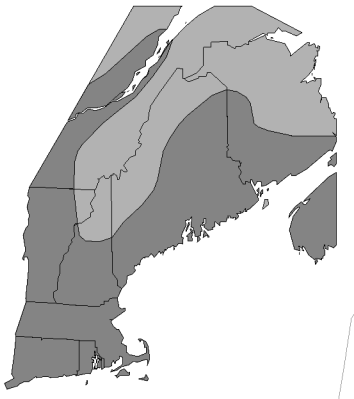
Predicted distribution

Maine range

Painted turtle

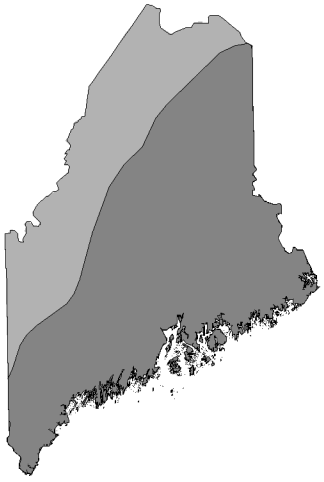
CHPP

June 1998



Regional range

Predicted distribution

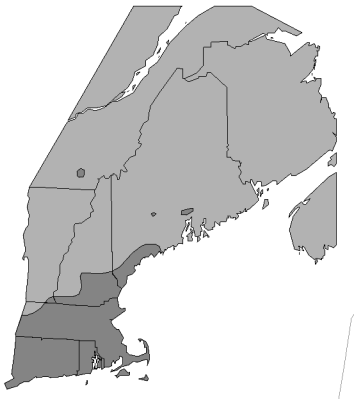


Maine range

Spotted turtle

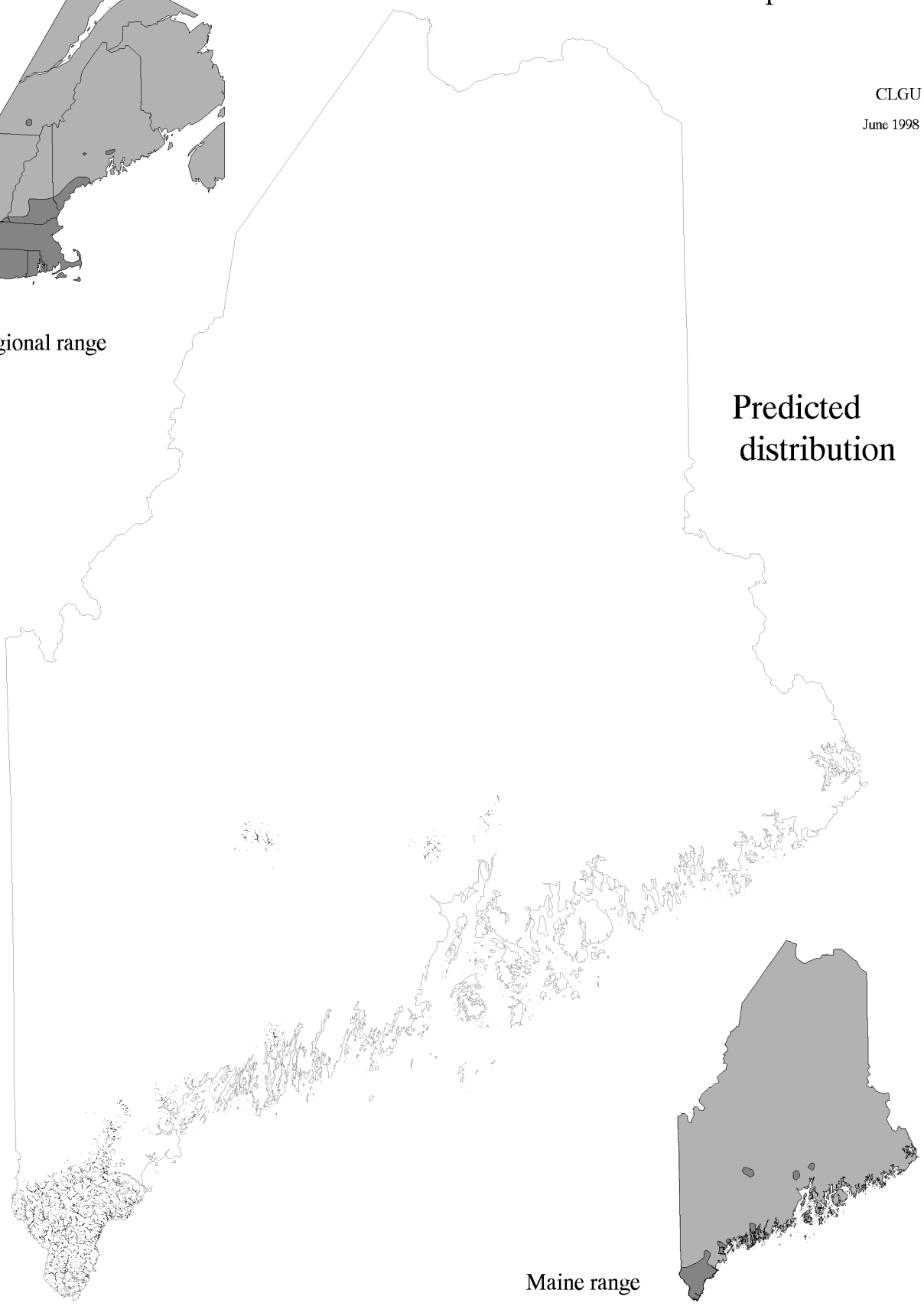
CLGU

June 1998



Regional range

Predicted distribution

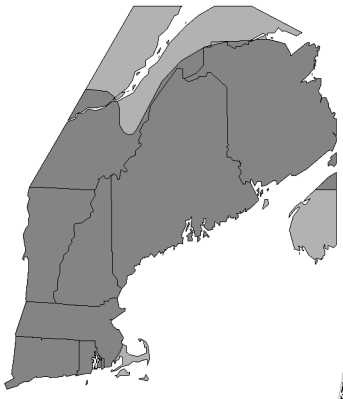


Maine range

Wood turtle

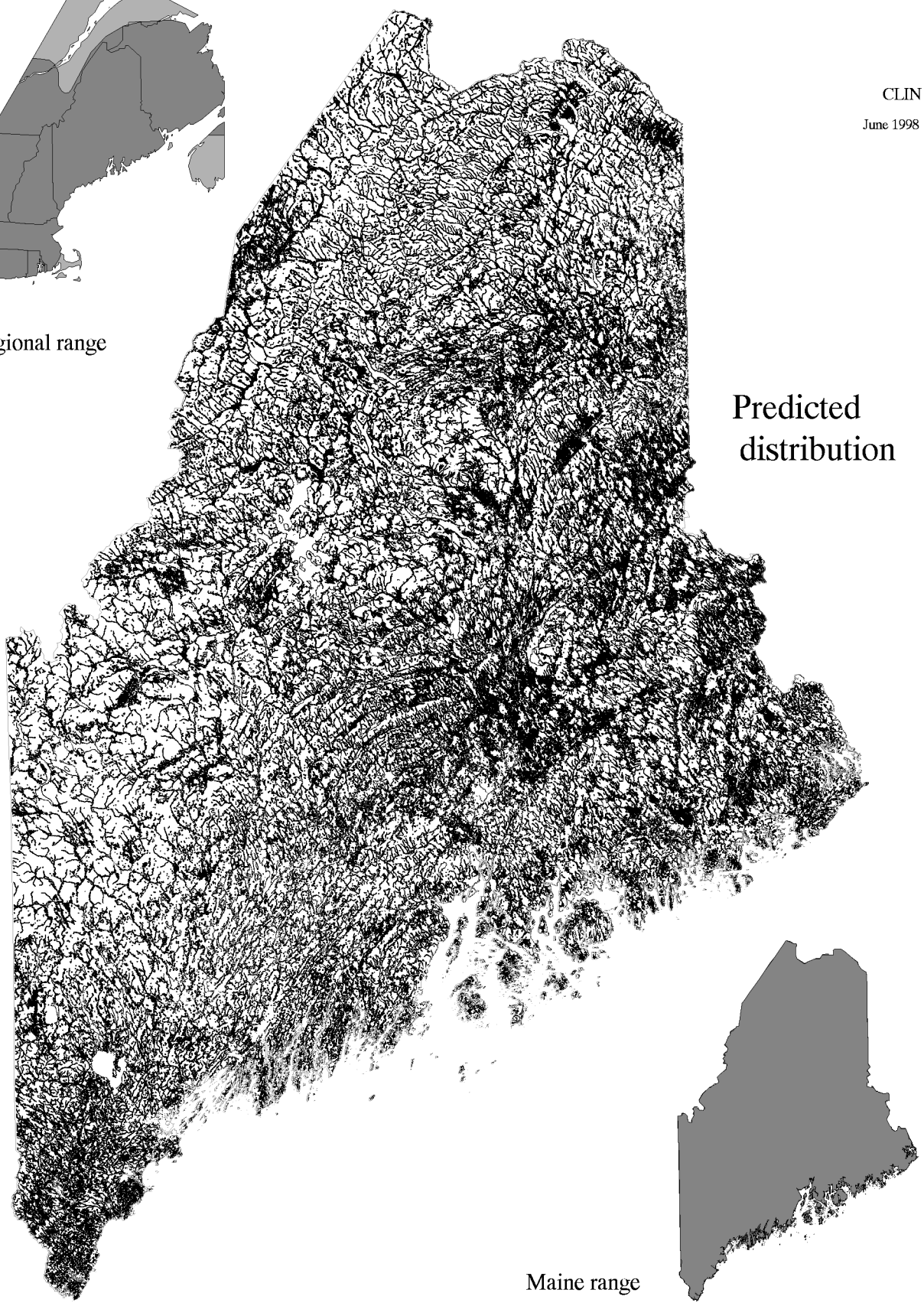
CLIN

June 1998



Regional range

Predicted distribution

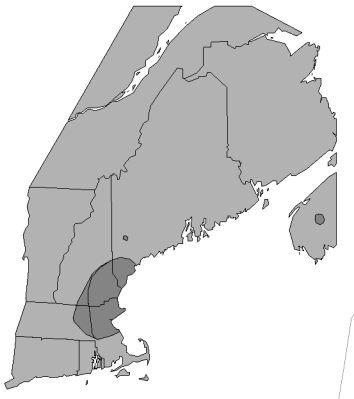


Maine range

Blanding's turtle

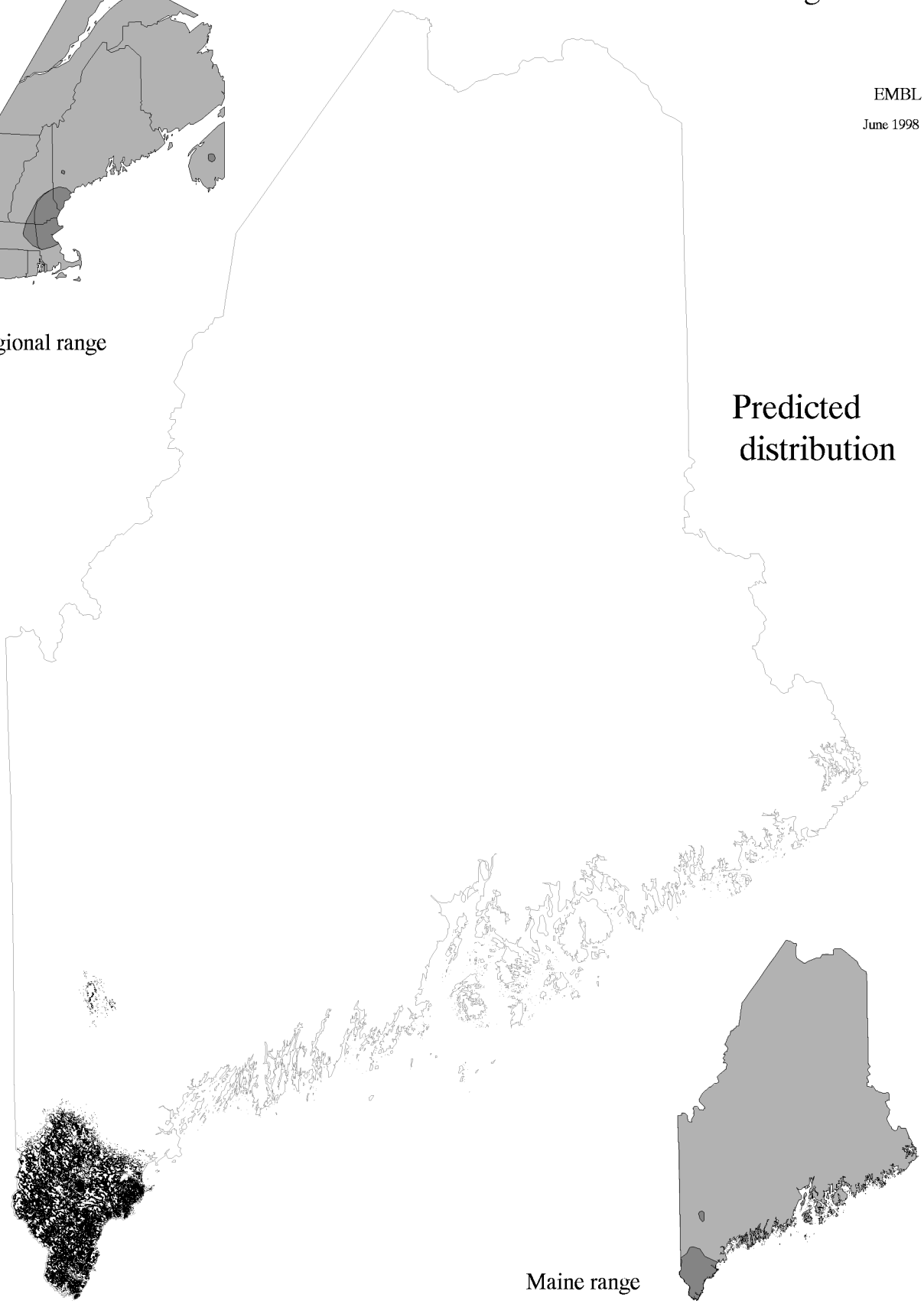
EMBL

June 1998



Regional range

Predicted distribution

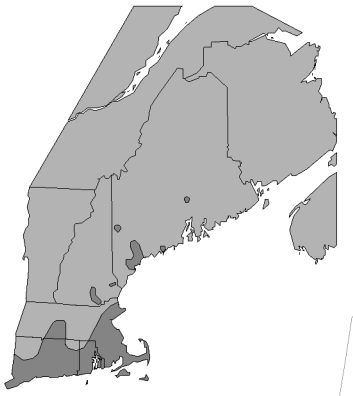


Maine range

Eastern Box Turtle

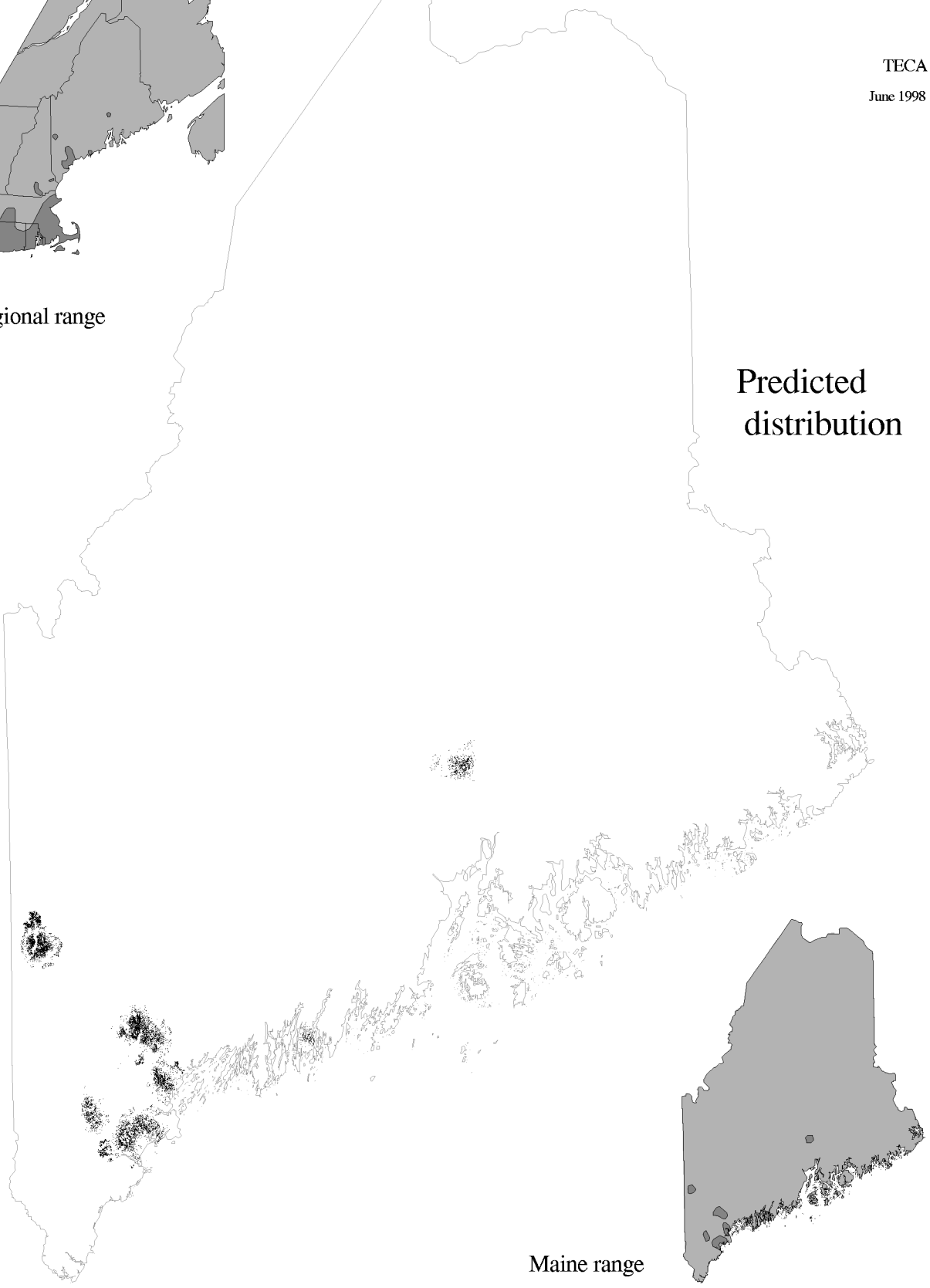
TECA

June 1998



Regional range

Predicted distribution

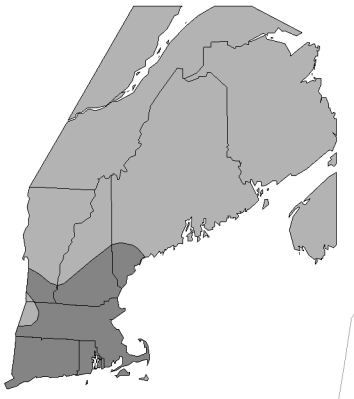


Maine range

Racer

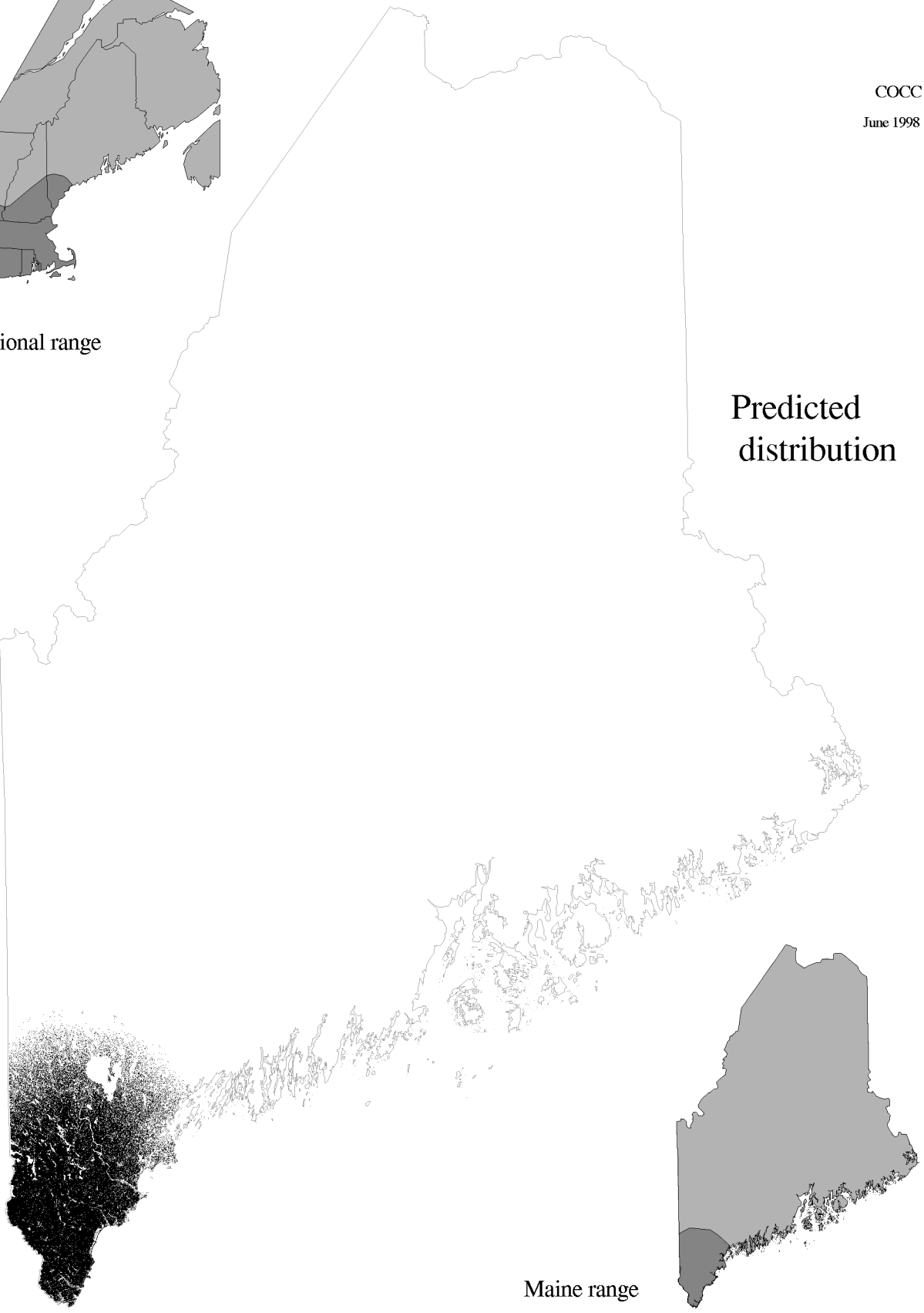
COCC

June 1998



Regional range

Predicted distribution

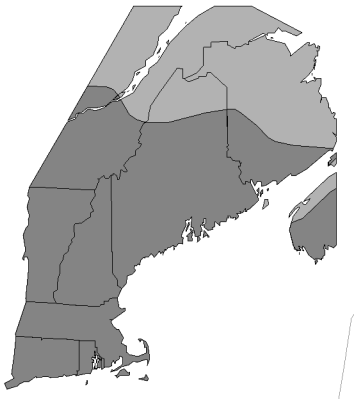


Maine range

Ring-necked snake

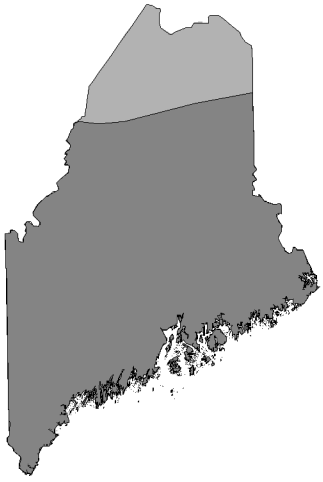
DIPU

June 1998



Regional range

Predicted distribution

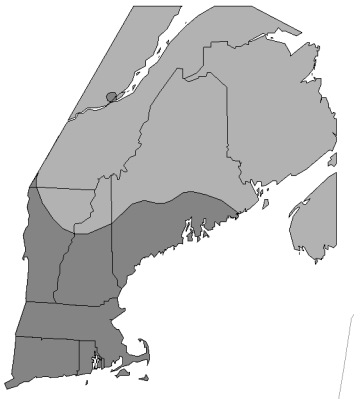


Maine range

Milk snake

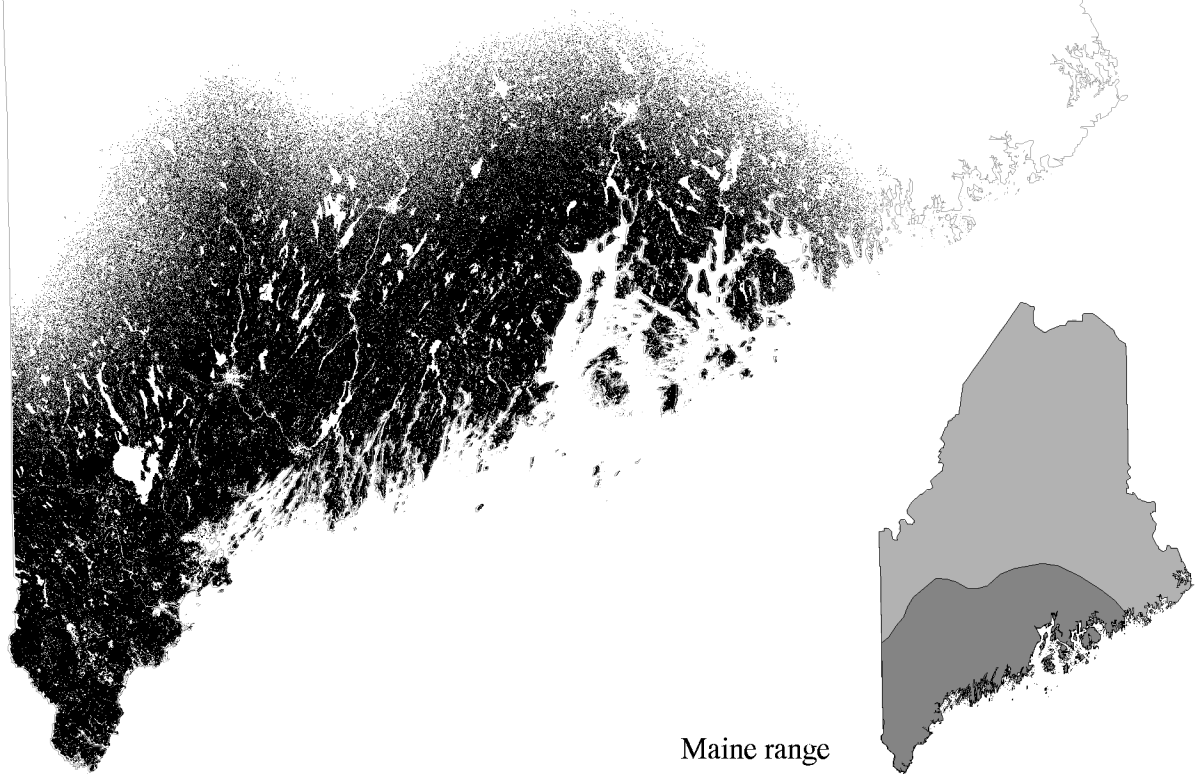
LATR

June 1998



Regional range

Predicted distribution

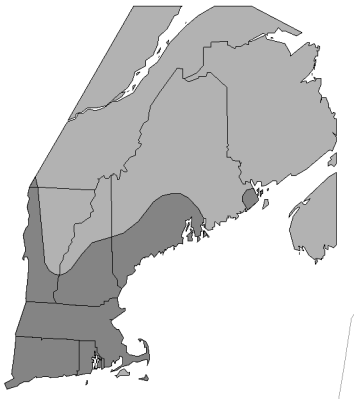


Maine range

Northern water snake

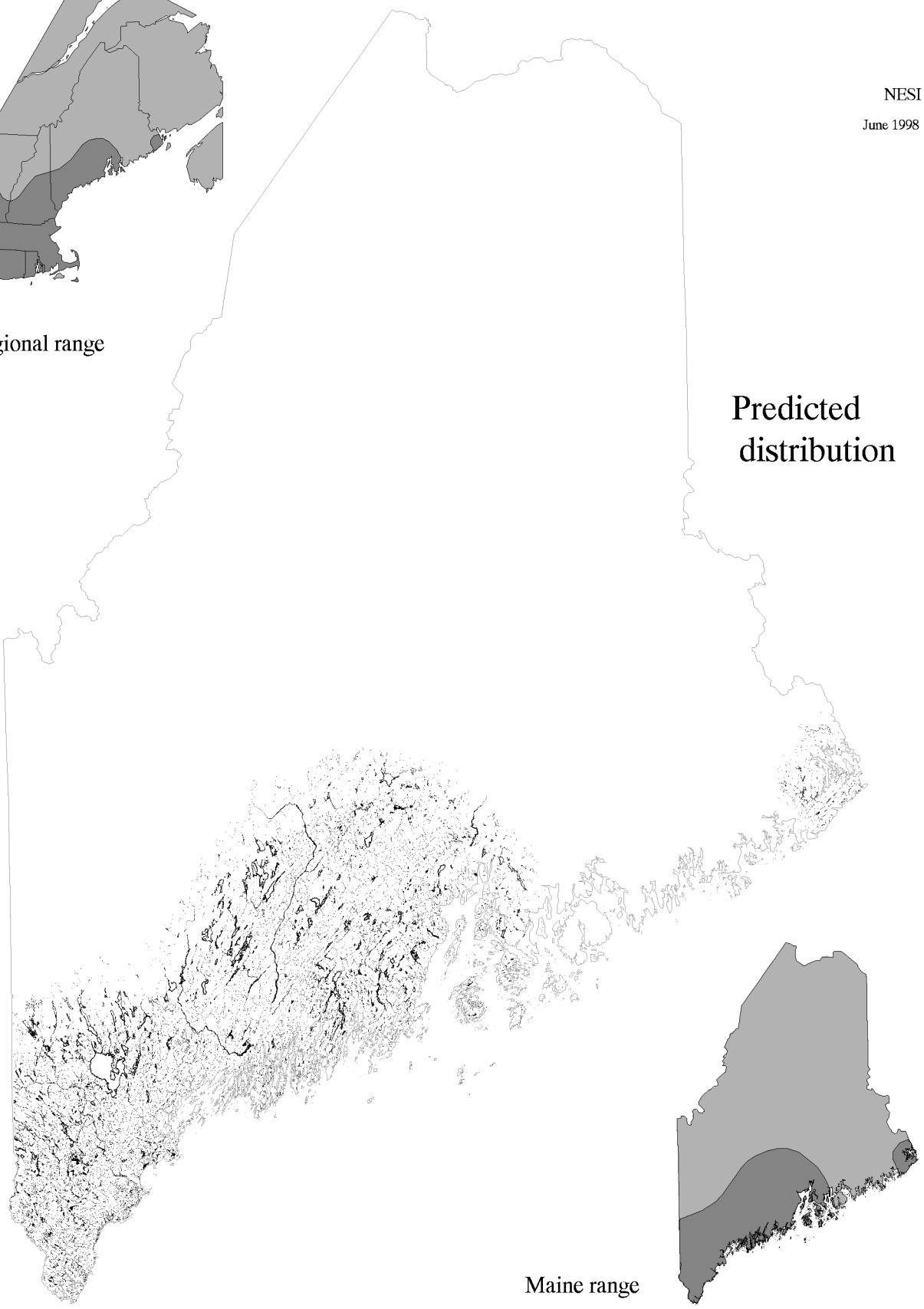
NESI

June 1998



Regional range

Predicted distribution

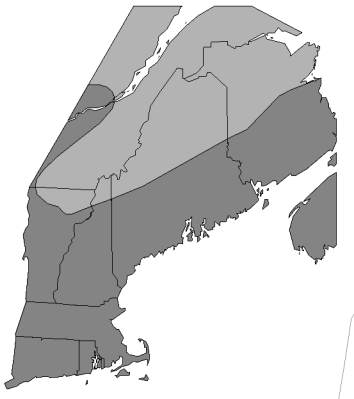


Maine range

Smooth green snake

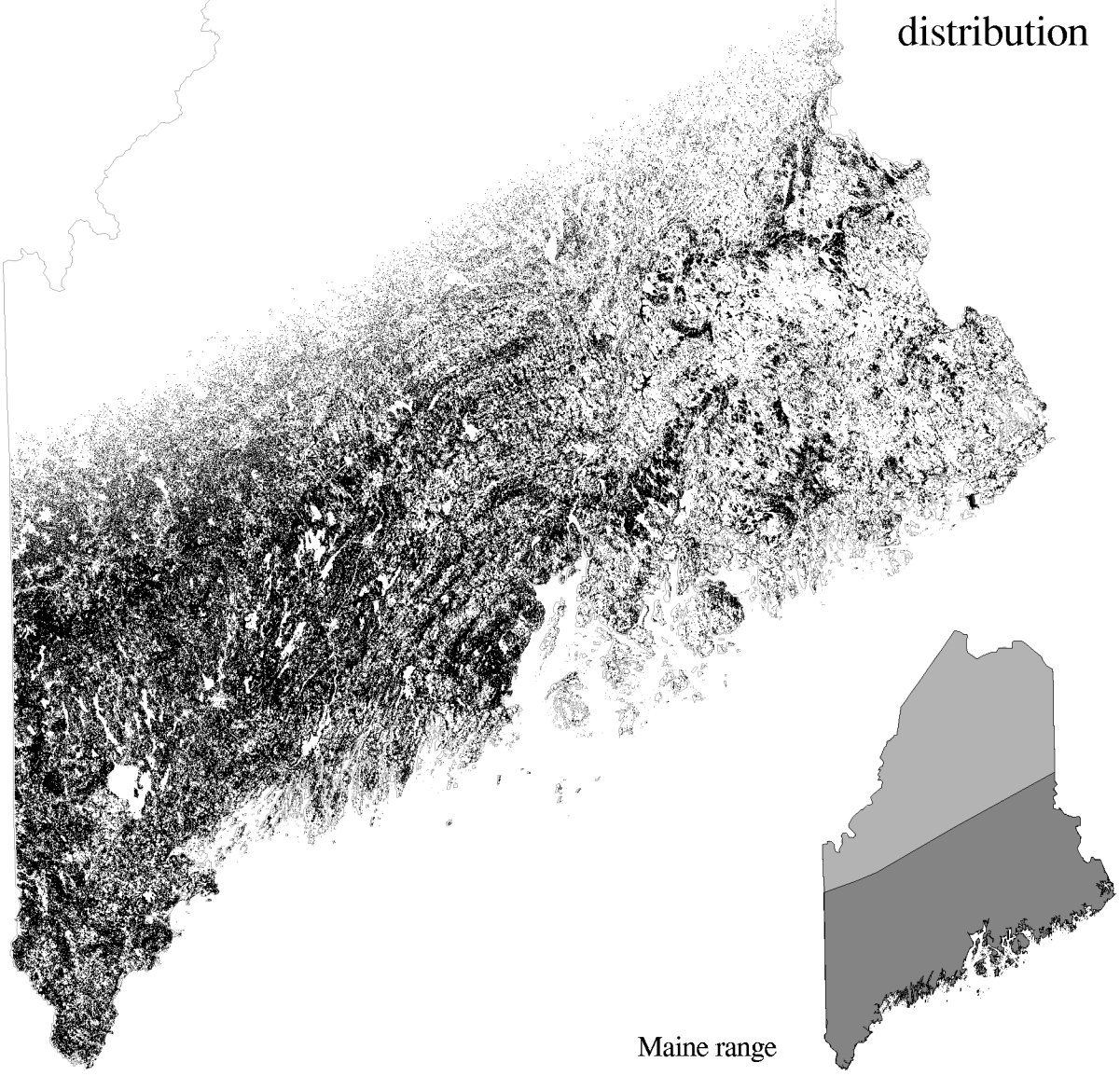
OPVE

June 1998



Regional range

Predicted distribution

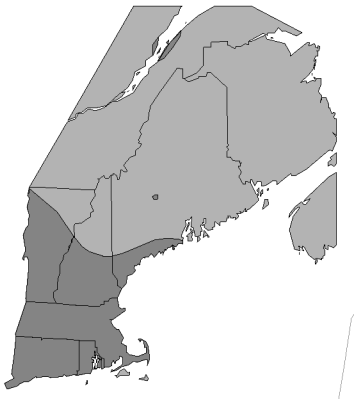


Maine range

Brown snake

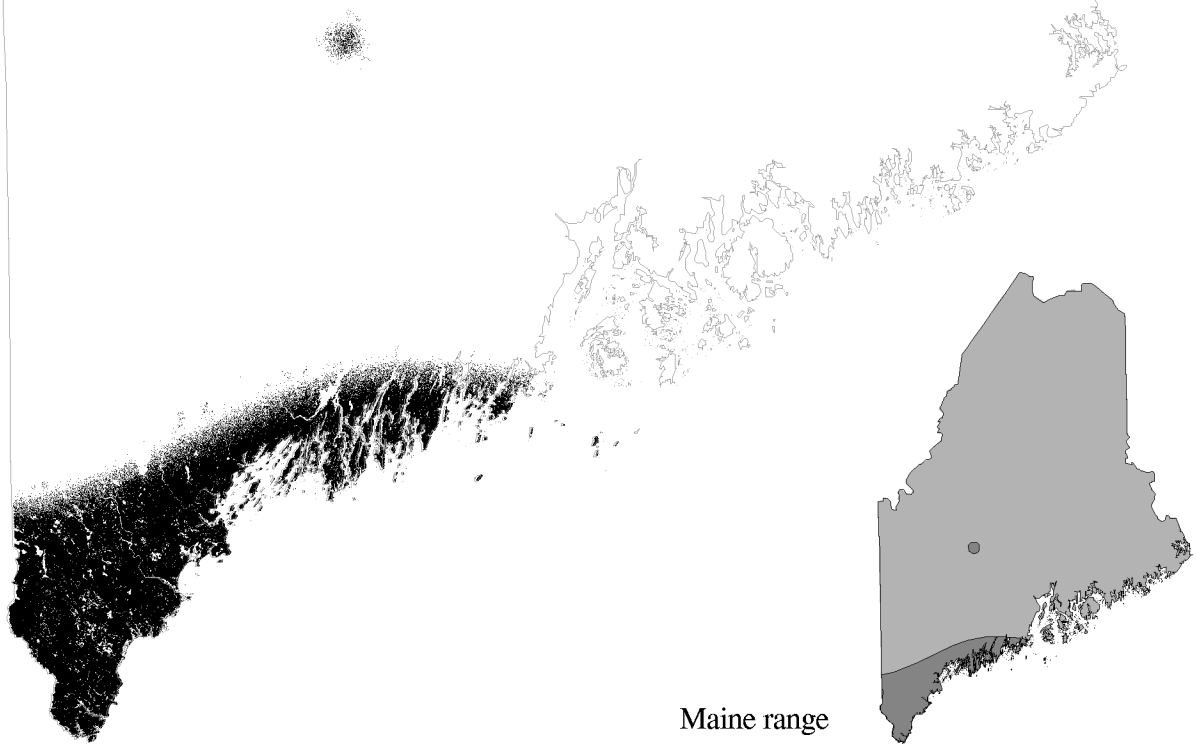
STDE

June 1998



Regional range

Predicted distribution

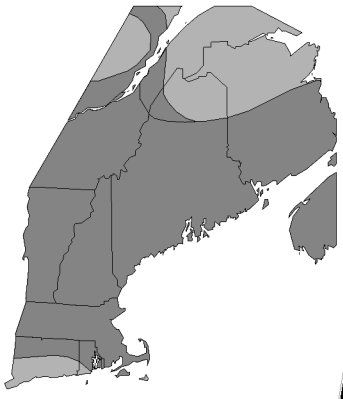


Maine range

Red-bellied snake

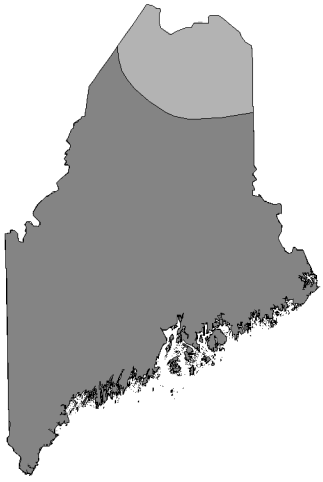
STOC

June 1998



Regional range

Predicted distribution

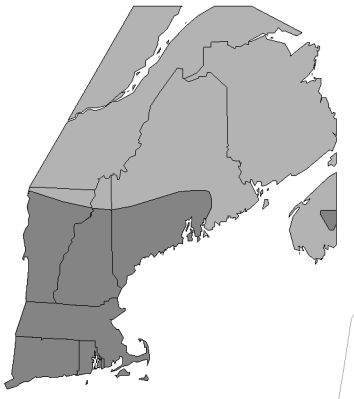


Maine range

Eastern ribbon snake

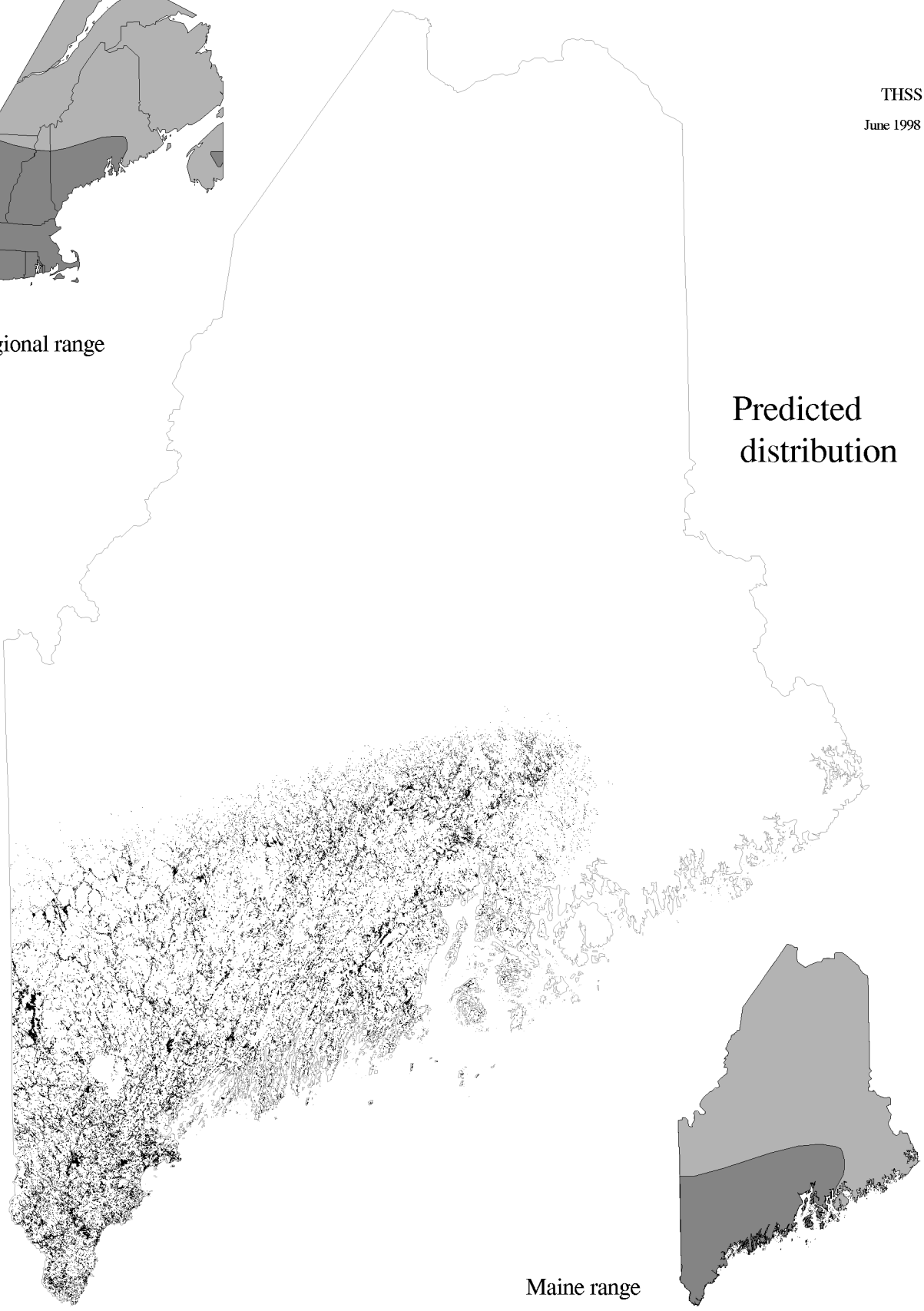
THSS

June 1998



Regional range

Predicted distribution

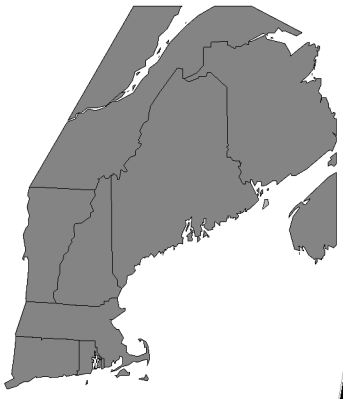


Maine range

Common garter snake

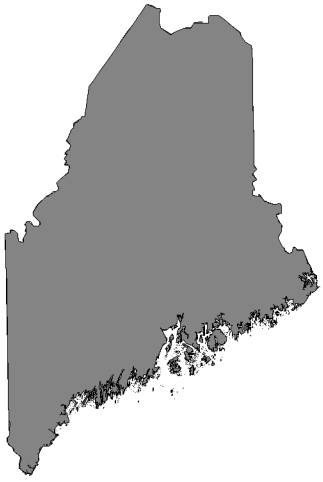
THSI

June 1998



Regional range

Predicted distribution

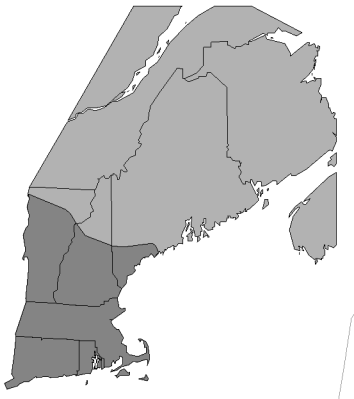


Maine range

Virginia opossum

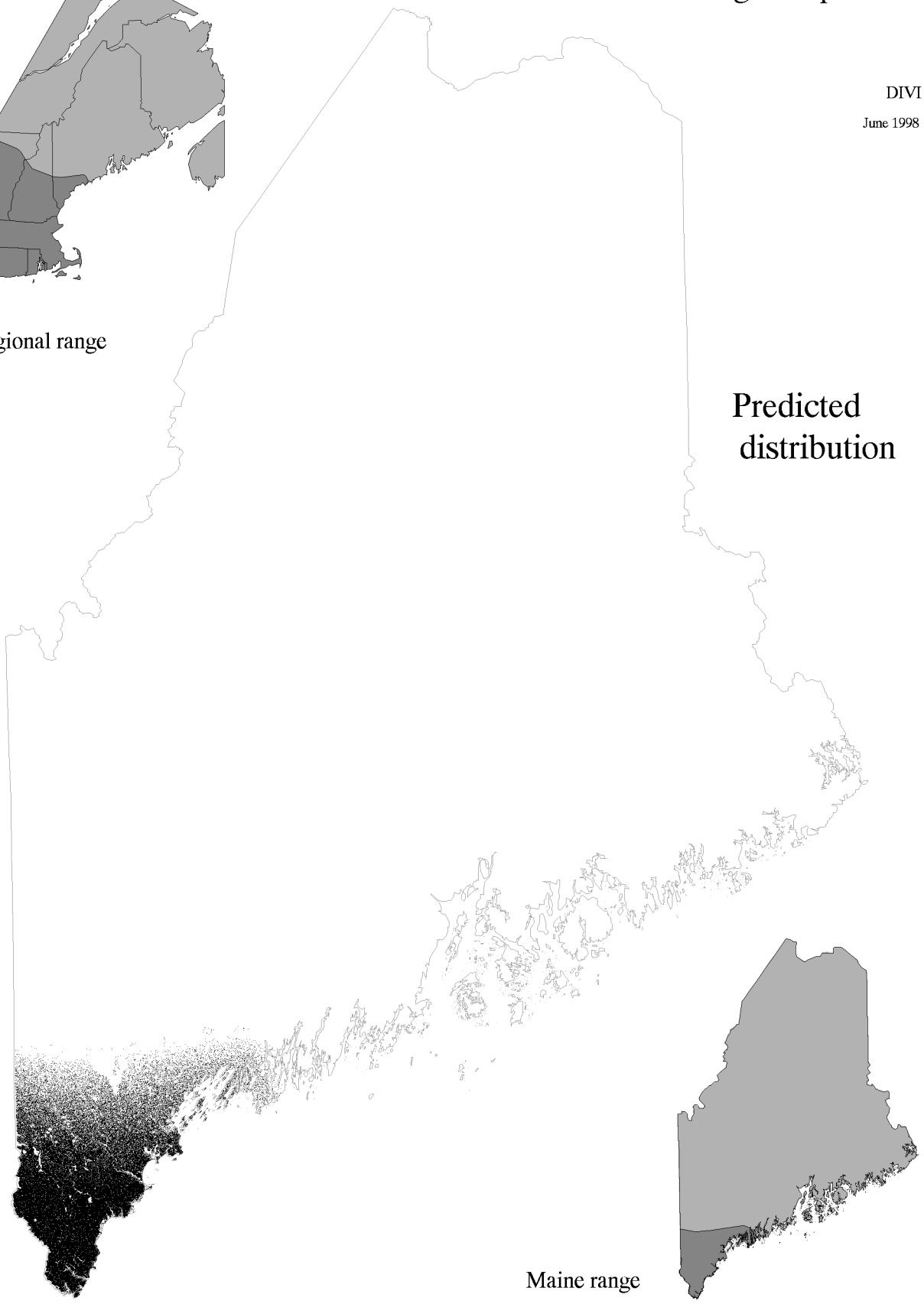
DIVI

June 1998



Regional range

Predicted distribution

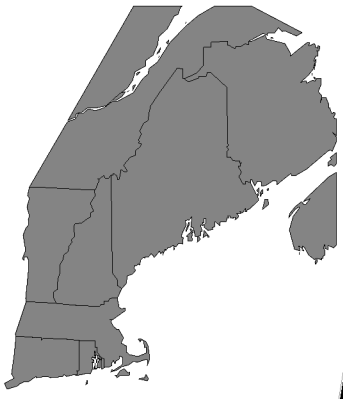


Maine range

Masked shrew

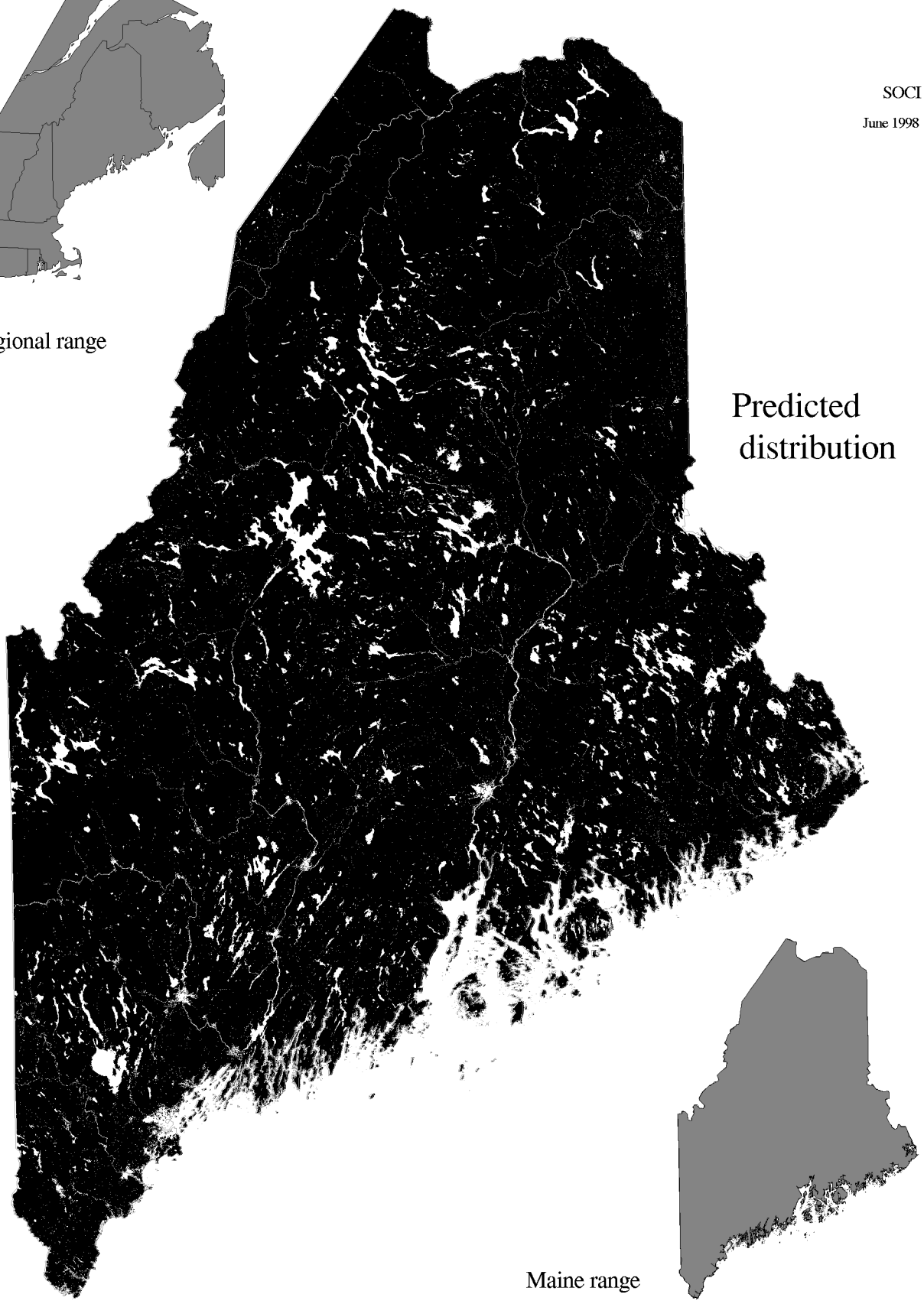
SOCI

June 1998



Regional range

Predicted distribution

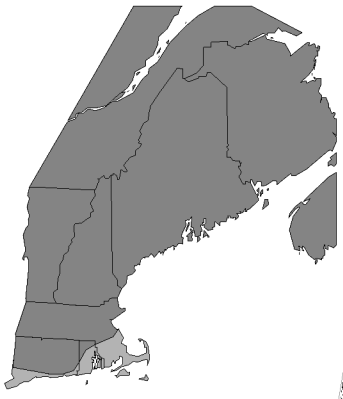


Maine range

Water shrew

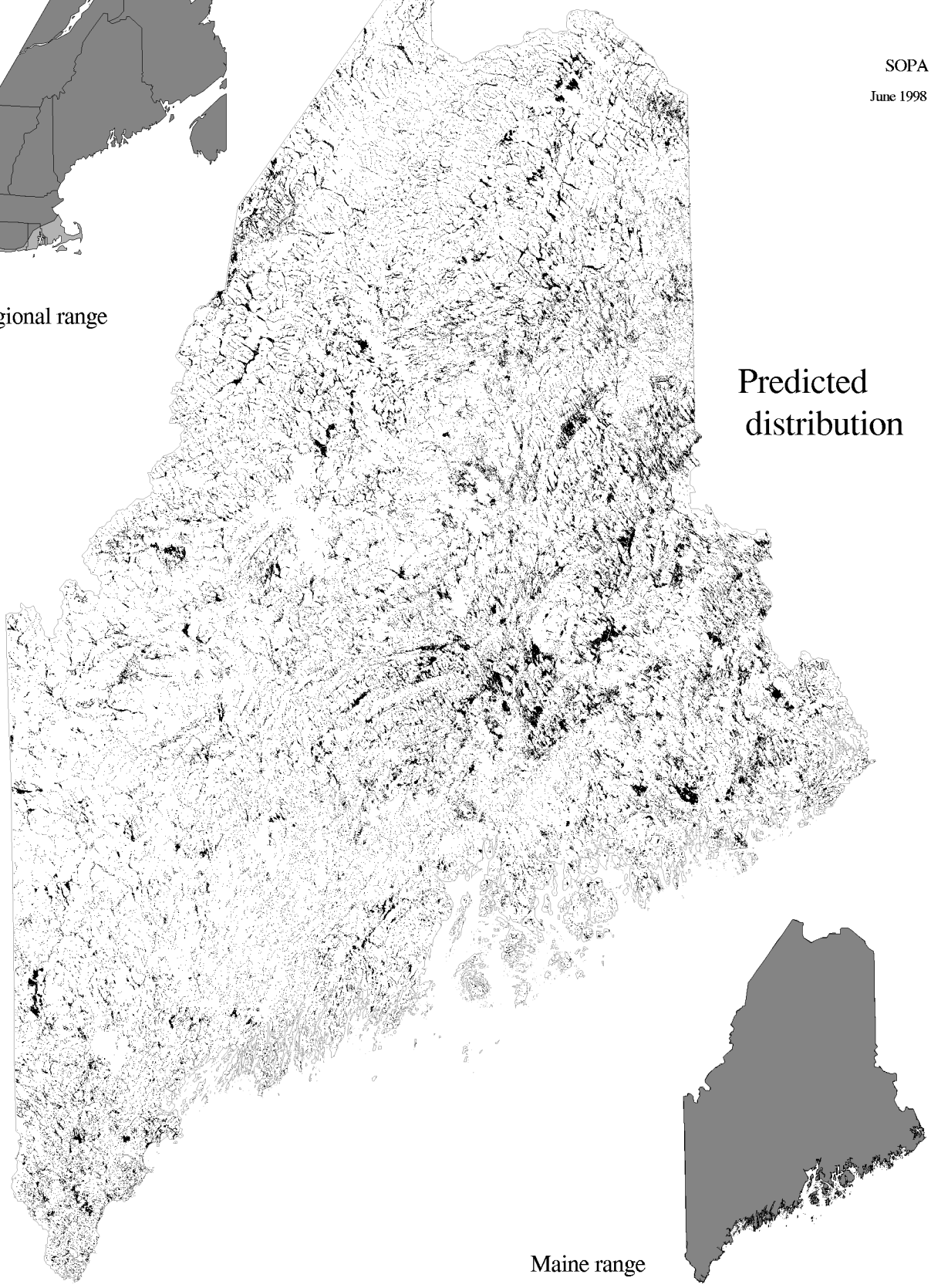
SOPA

June 1998



Regional range

Predicted distribution

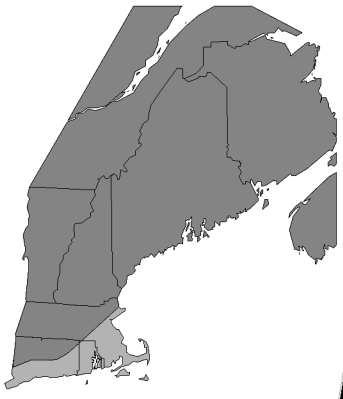


Maine range

Smoky shrew

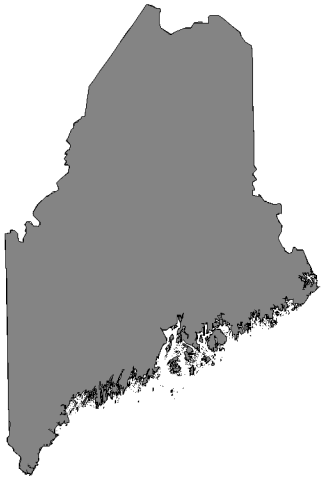
SOFU

June 1998



Regional range

Predicted distribution

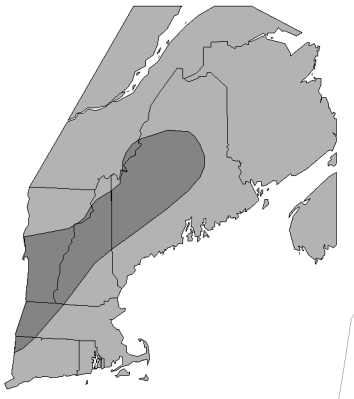


Maine range

Long-tailed shrew

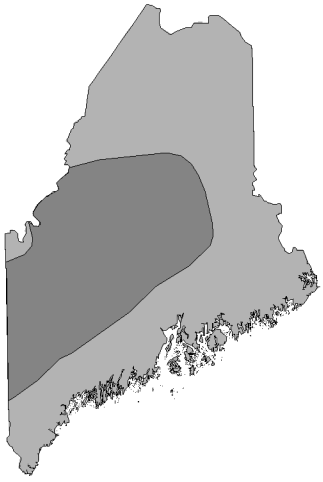
SODI

June 1998



Regional range

Predicted distribution

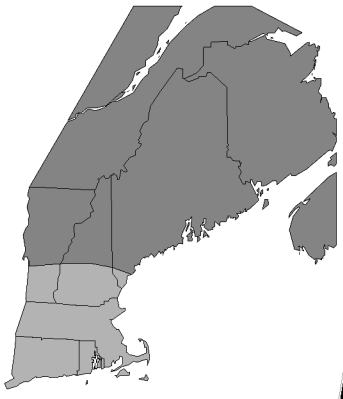


Maine range

Pygmy shrew

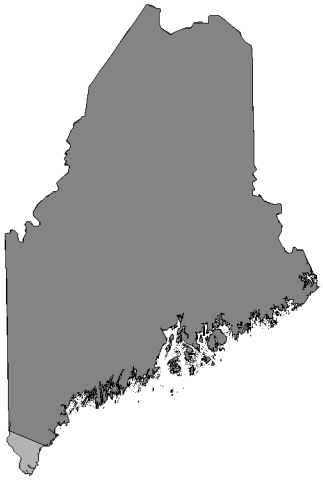
SOHO

June 1998



Regional range

Predicted distribution



Maine range

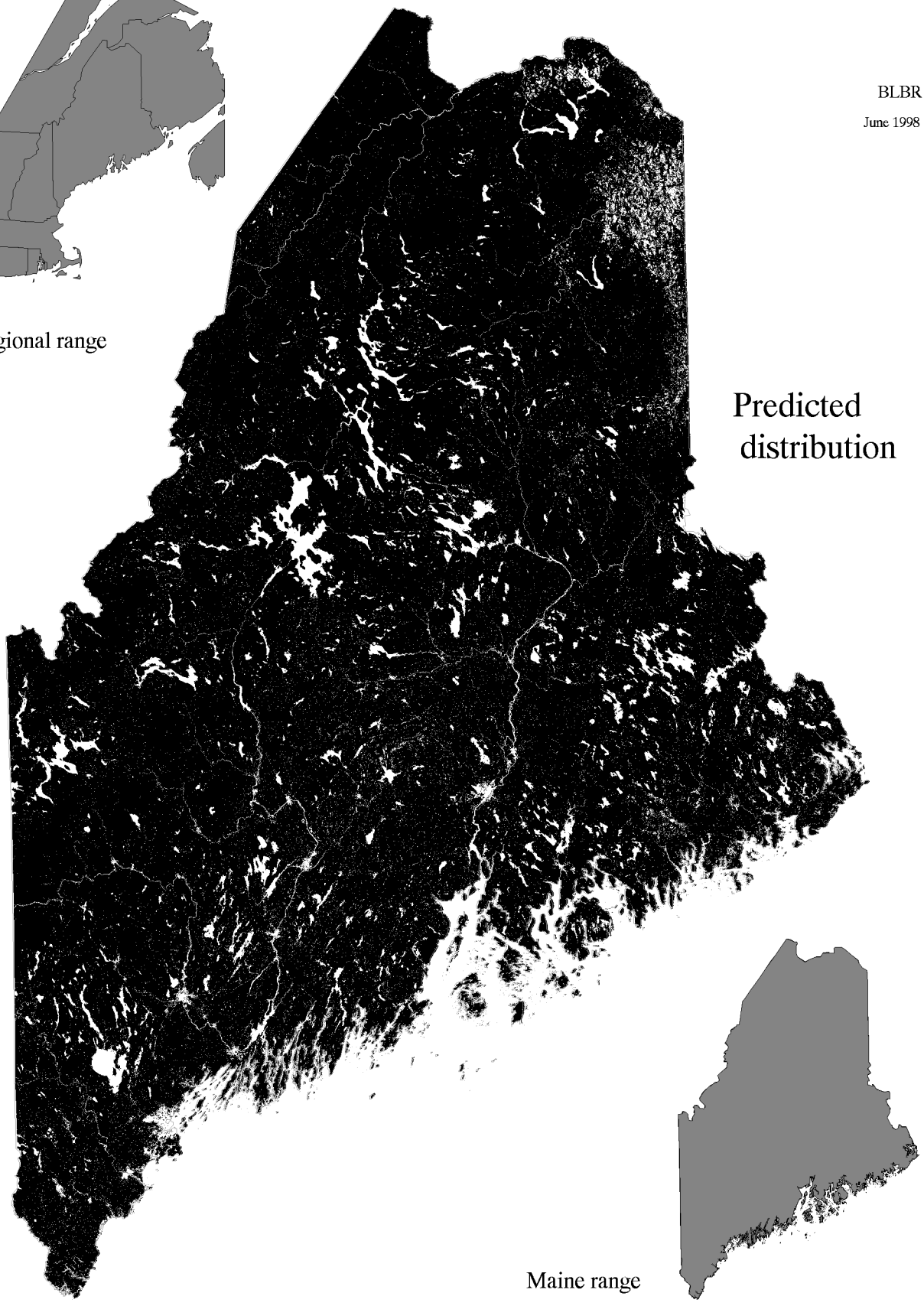
Northern Short-tailed shrew

BLBR

June 1998

Regional range

Predicted distribution

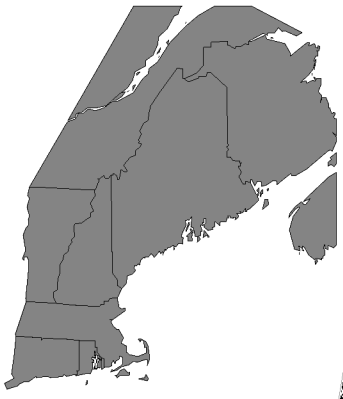


Maine range

Star-nosed mole

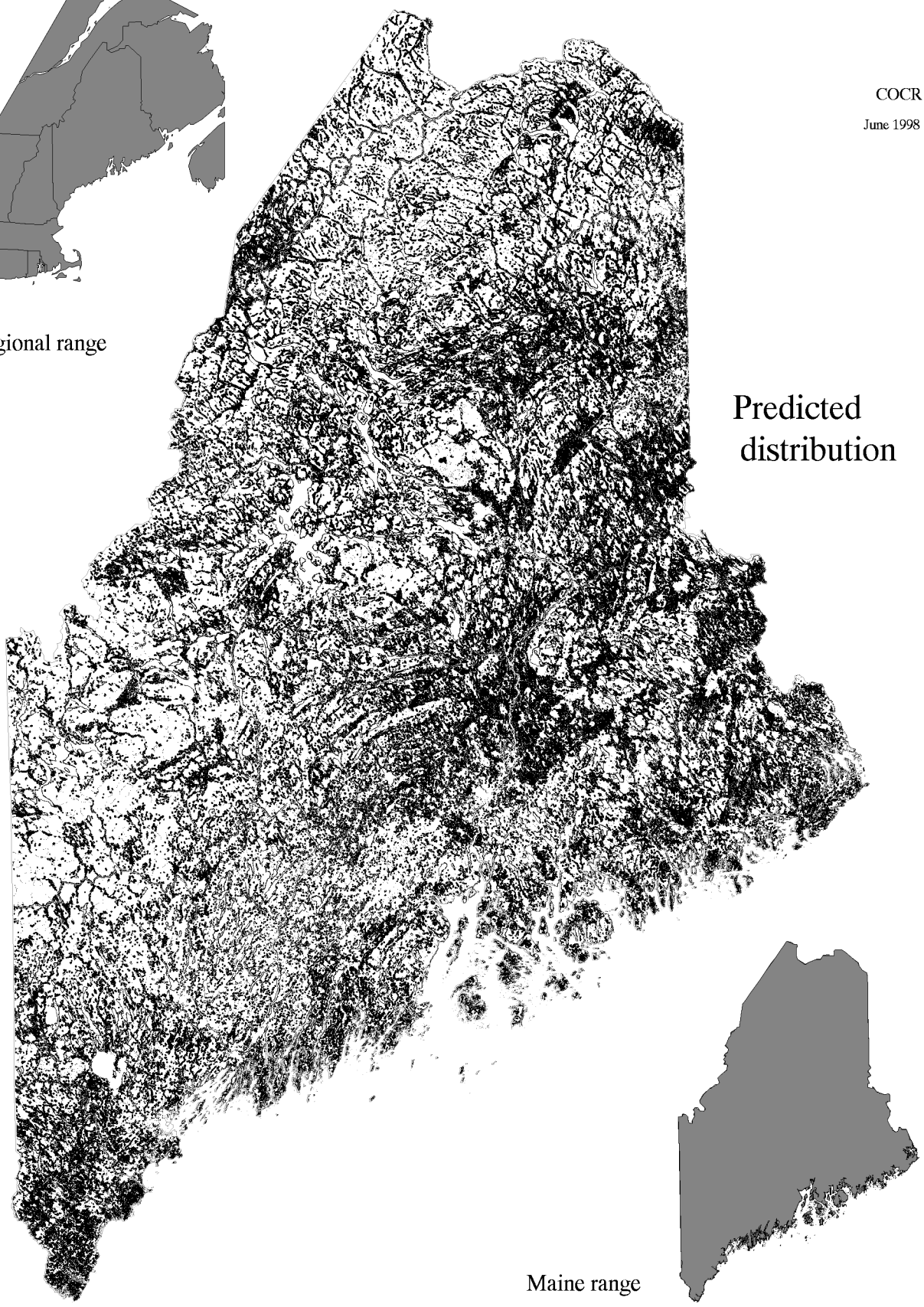
COCR

June 1998



Regional range

Predicted distribution

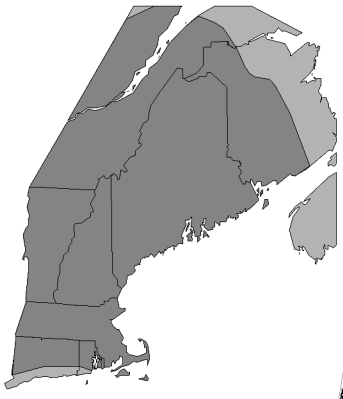


Maine range

Hairy-tailed mole

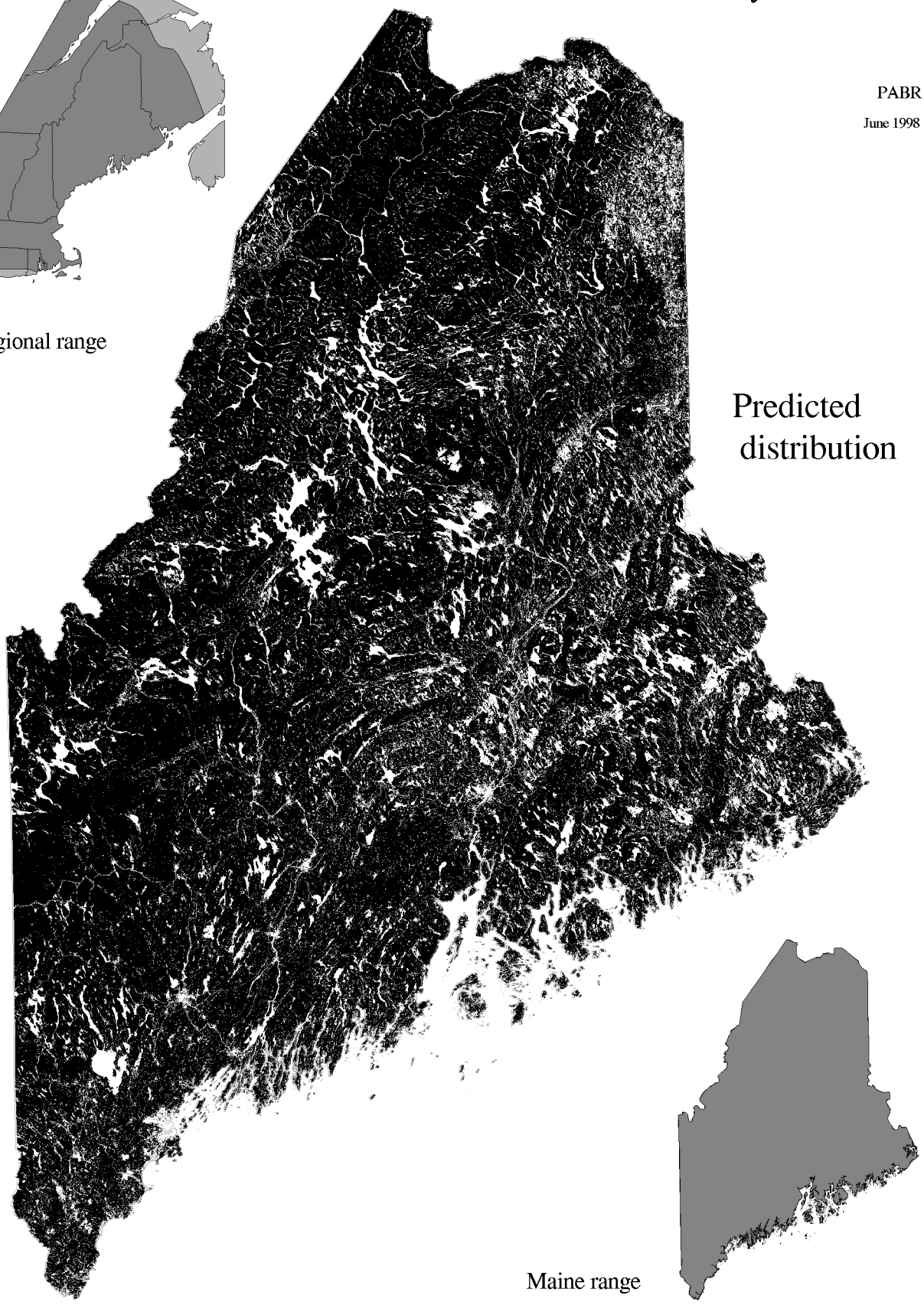
PABR

June 1998



Regional range

Predicted distribution

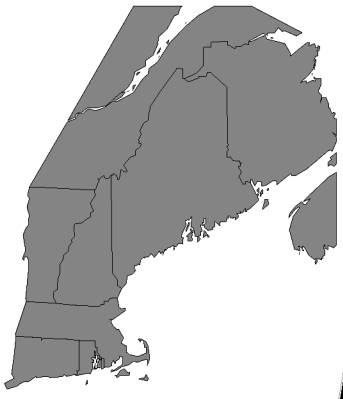


Maine range

Little brown myotis

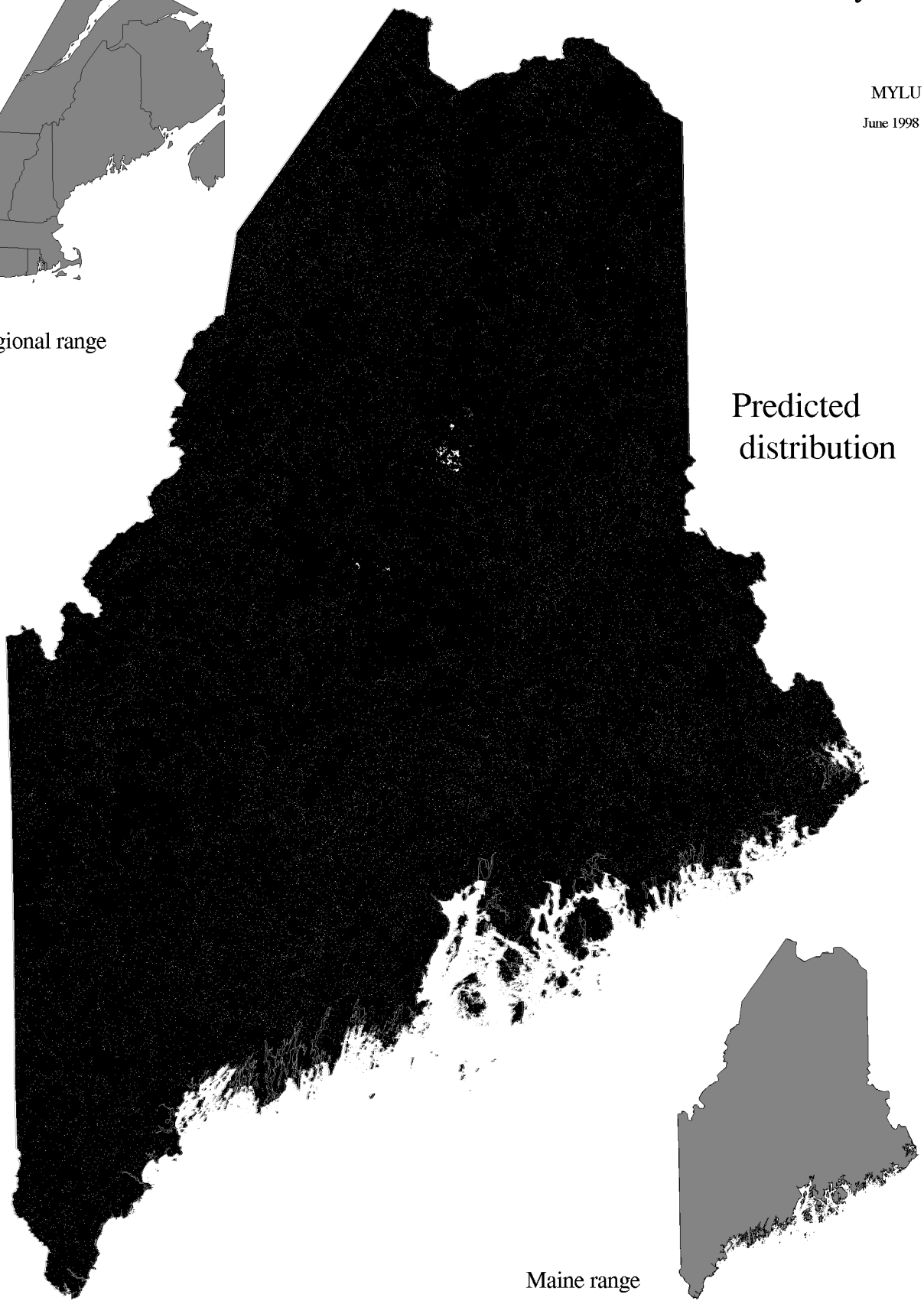
MYLU

June 1998



Regional range

Predicted distribution

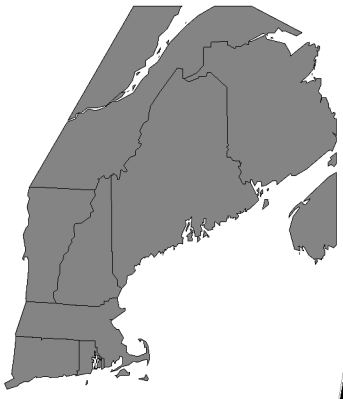


Maine range

Northern Myotis

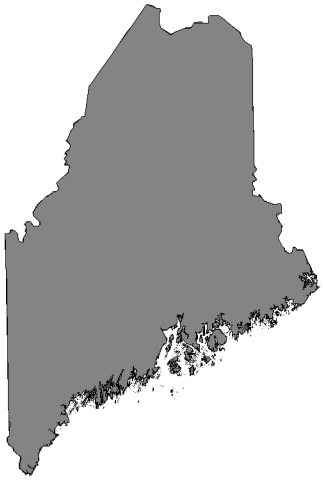
MYKE

June 1998



Regional range

Predicted distribution

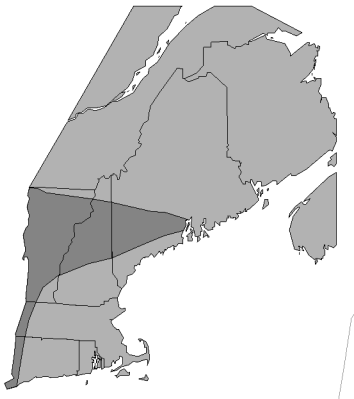


Maine range

Eastern Small-footed Myotis

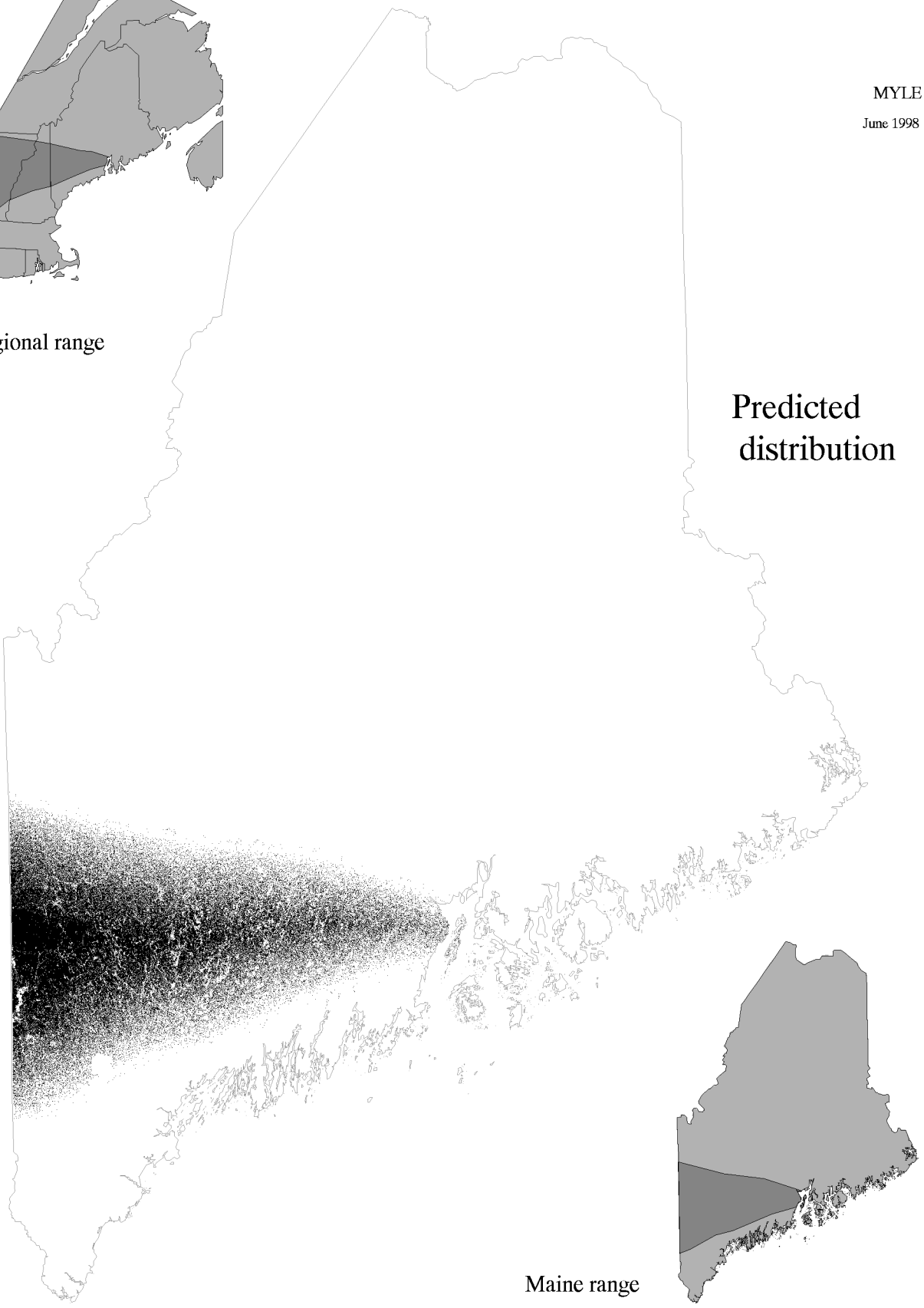
MYLE

June 1998



Regional range

Predicted distribution

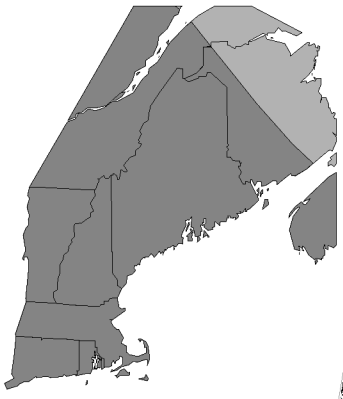


Maine range

Silver-haired bat

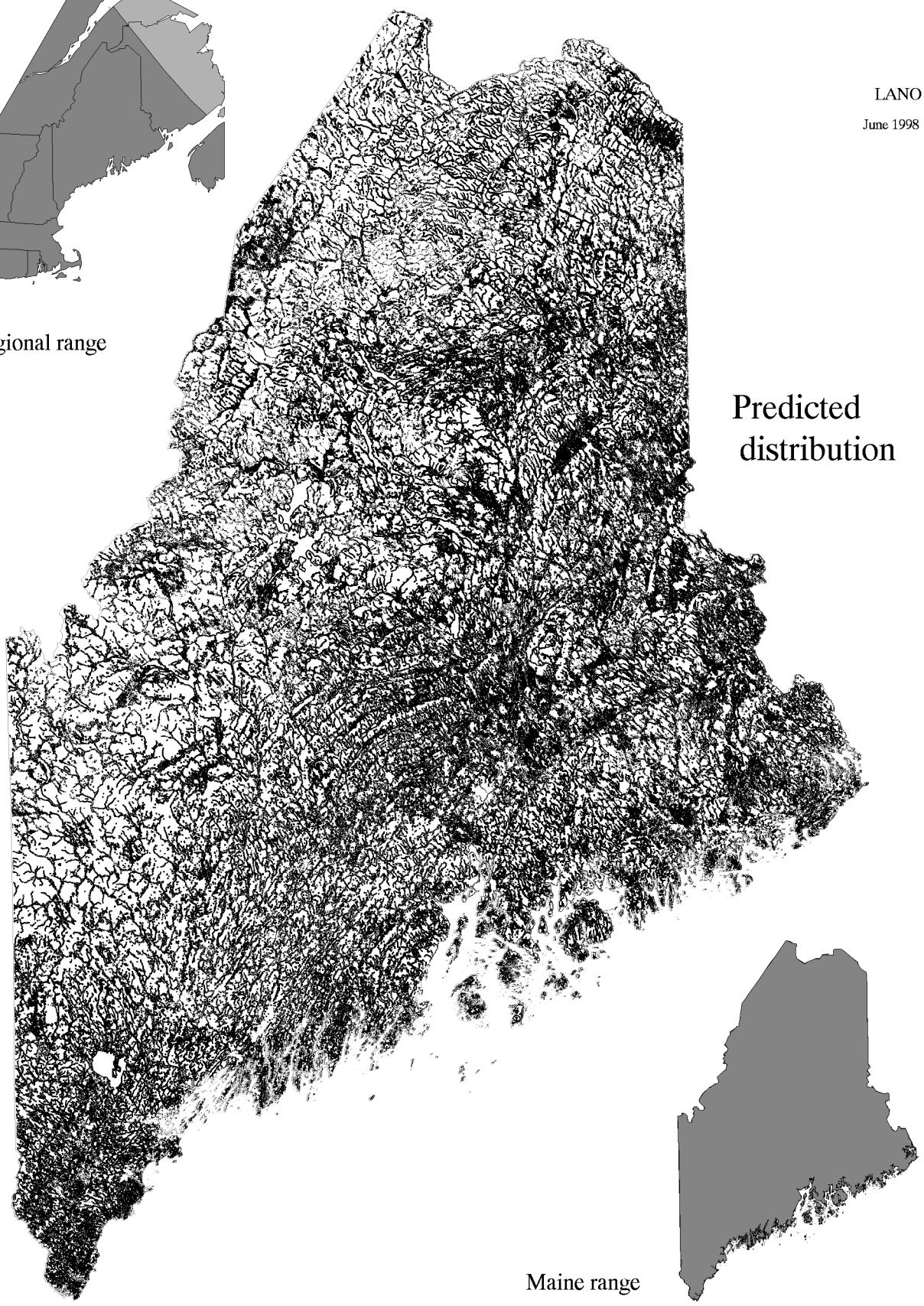
LANO

June 1998



Regional range

Predicted distribution

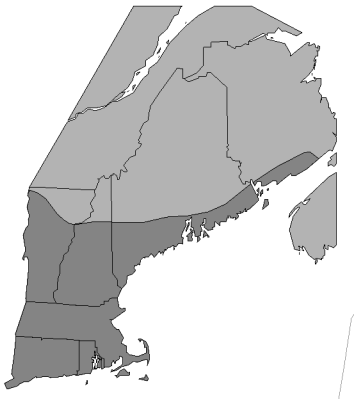


Maine range

Eastern pipistrelle

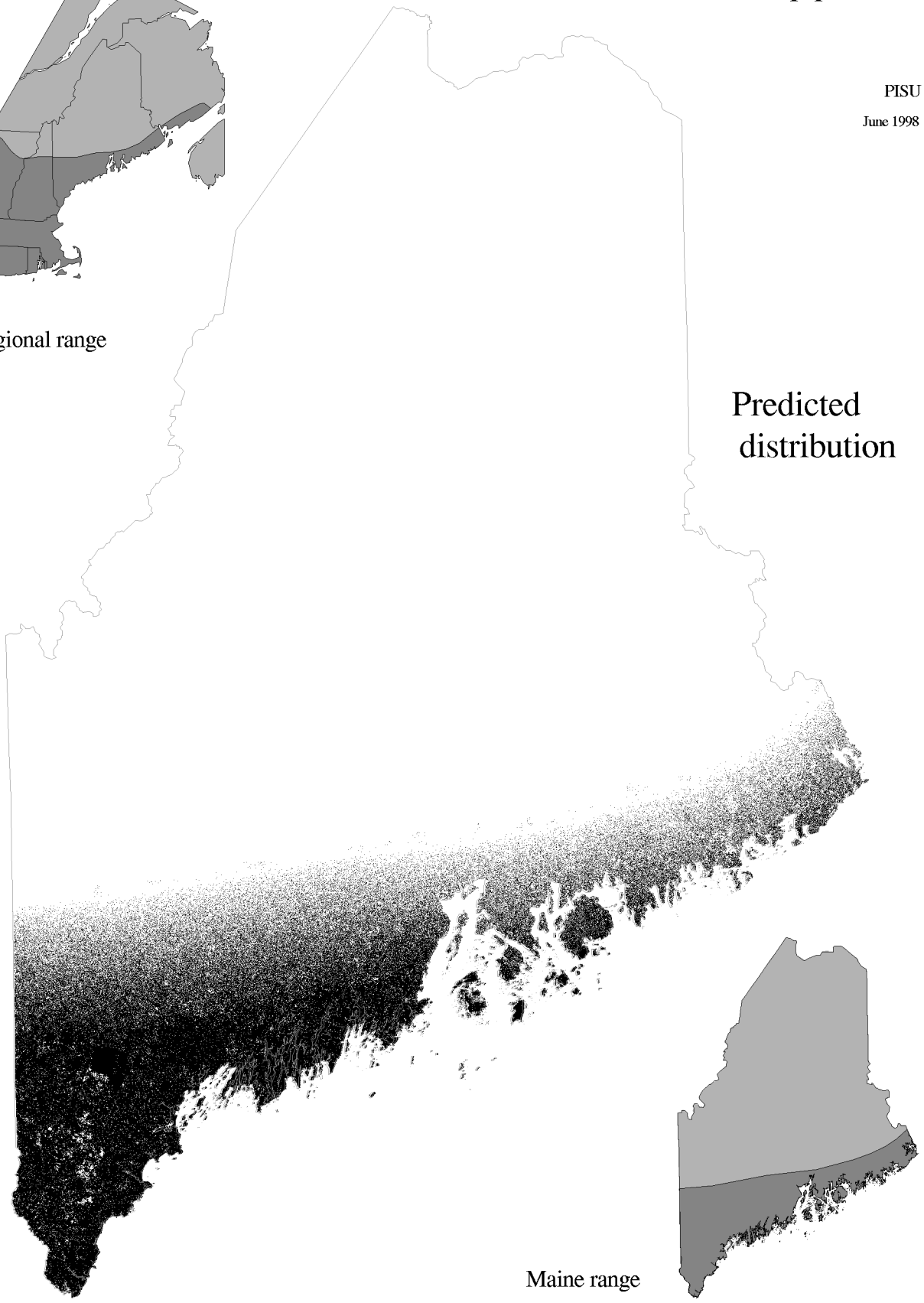
PISU

June 1998



Regional range

Predicted distribution

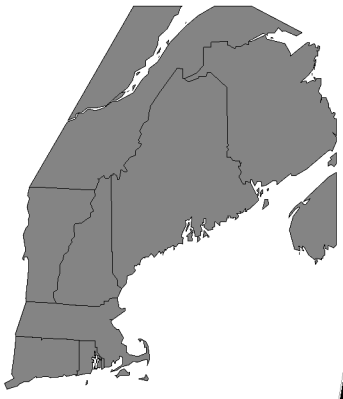


Maine range

Big brown bat

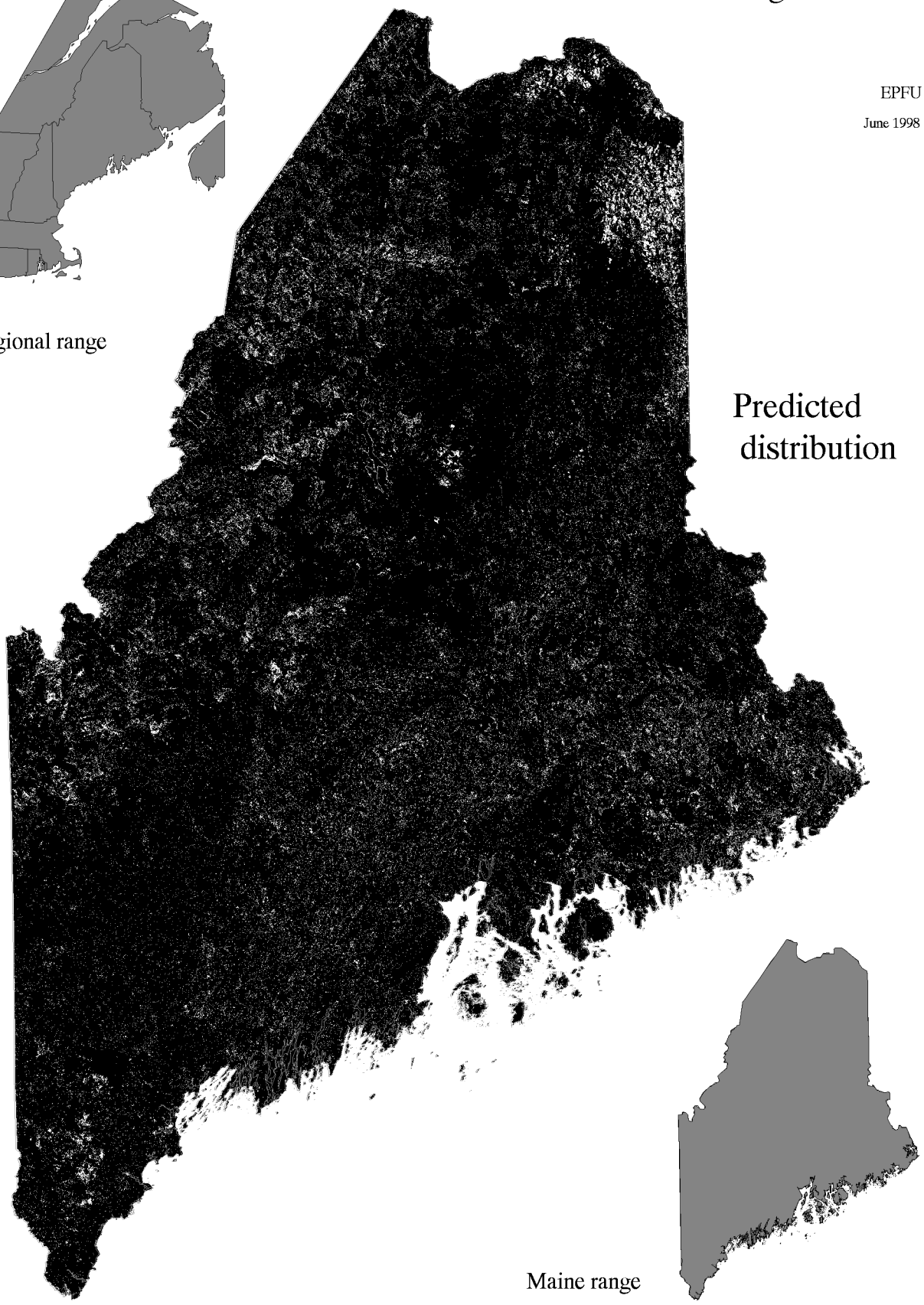
EPFU

June 1998



Regional range

Predicted distribution

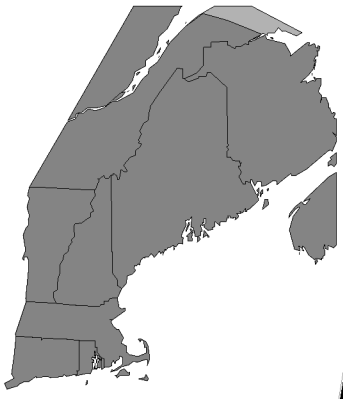


Maine range

Eastern Red Bat

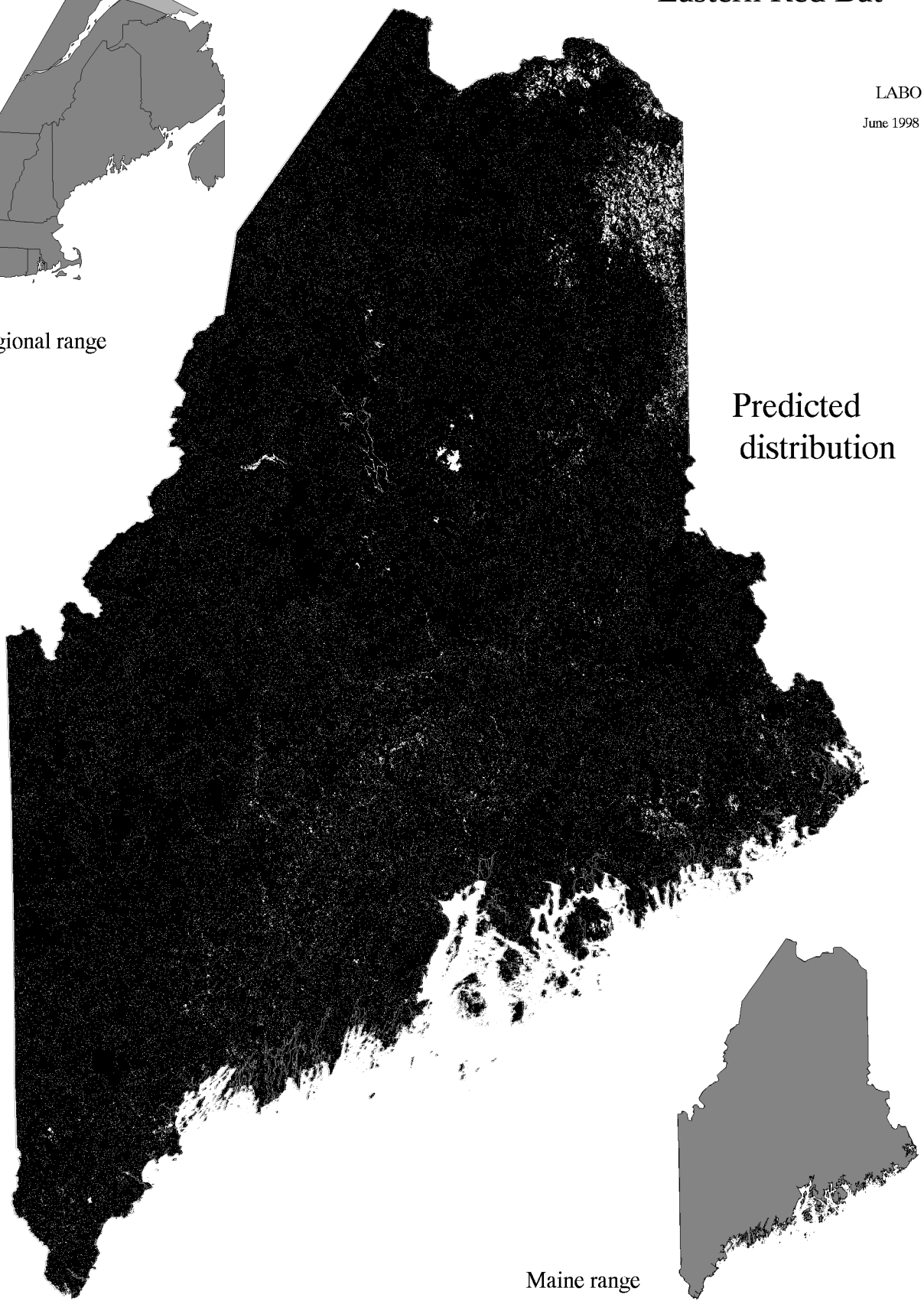
LABO

June 1998



Regional range

Predicted distribution

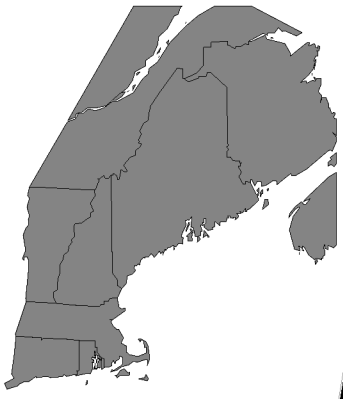


Maine range

Hoary bat

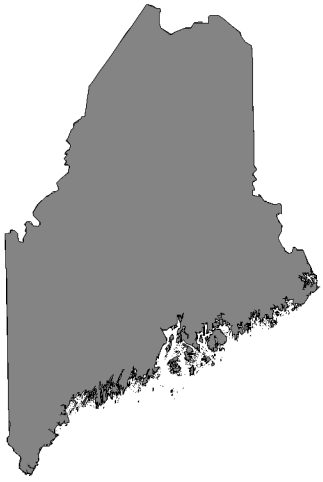
LACI

June 1998



Regional range

Predicted distribution

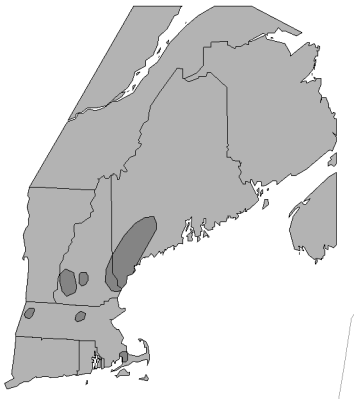


Maine range

New England cottontail

SYTR

June 1998



Regional range

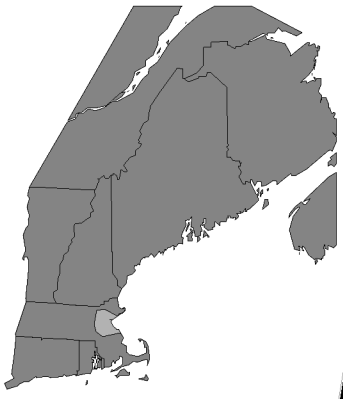
Predicted distribution

Maine range

Snowshoe hare

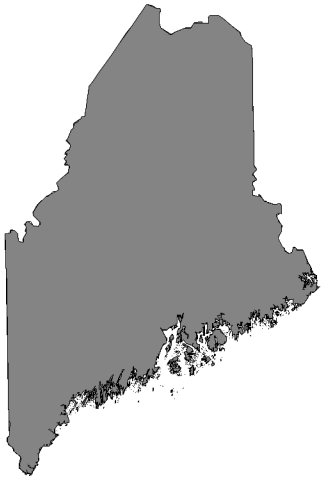
LEAM

June 1998



Regional range

Predicted distribution

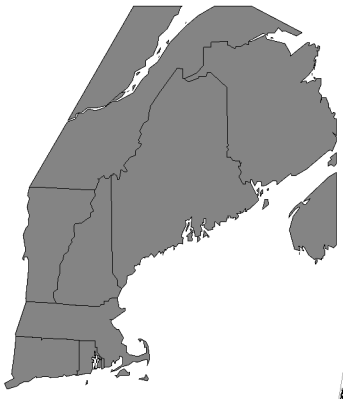


Maine range

Eastern chipmunk

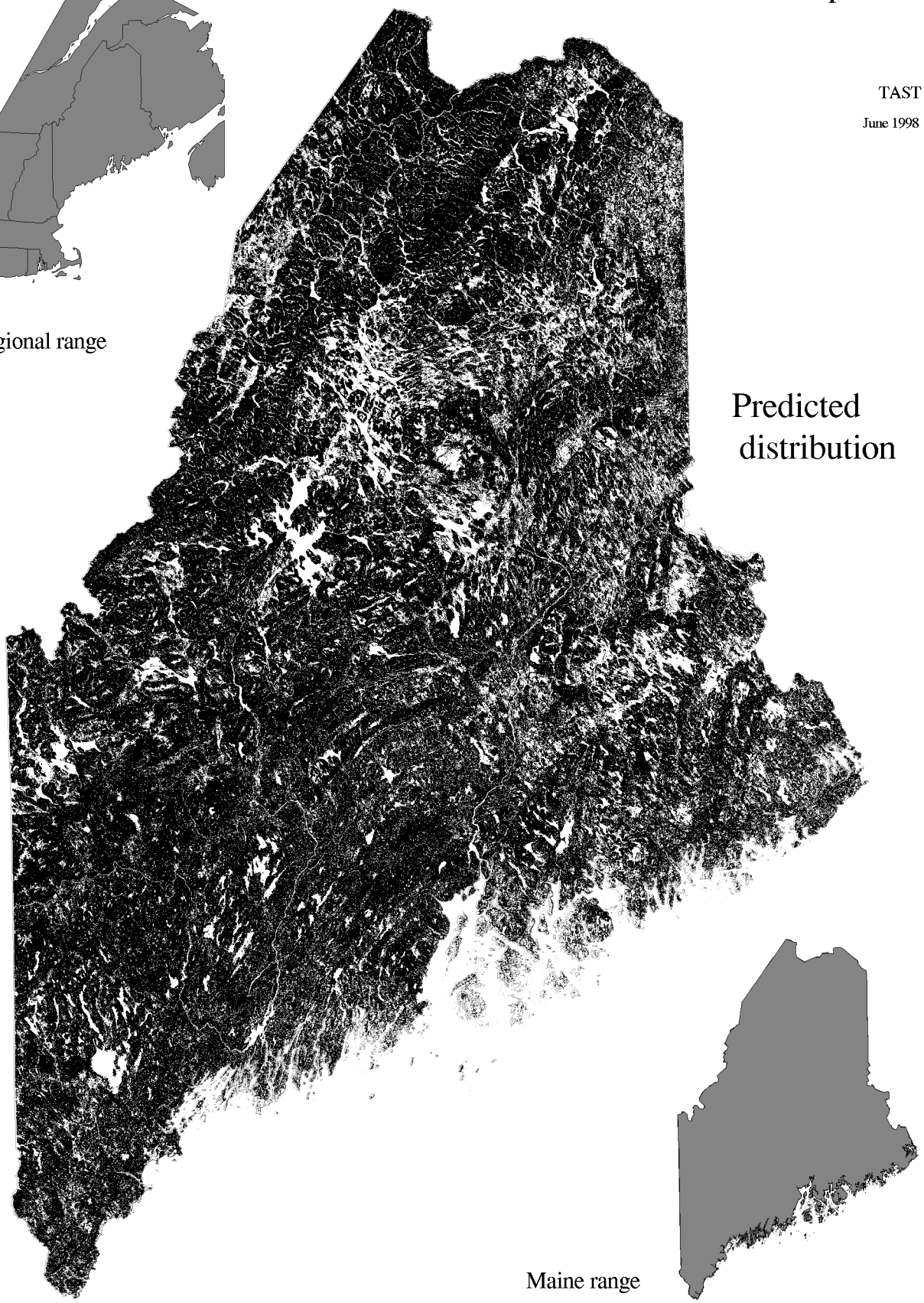
TAST

June 1998



Regional range

Predicted distribution

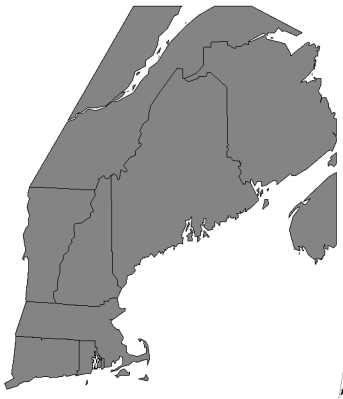


Maine range

Woodchuck

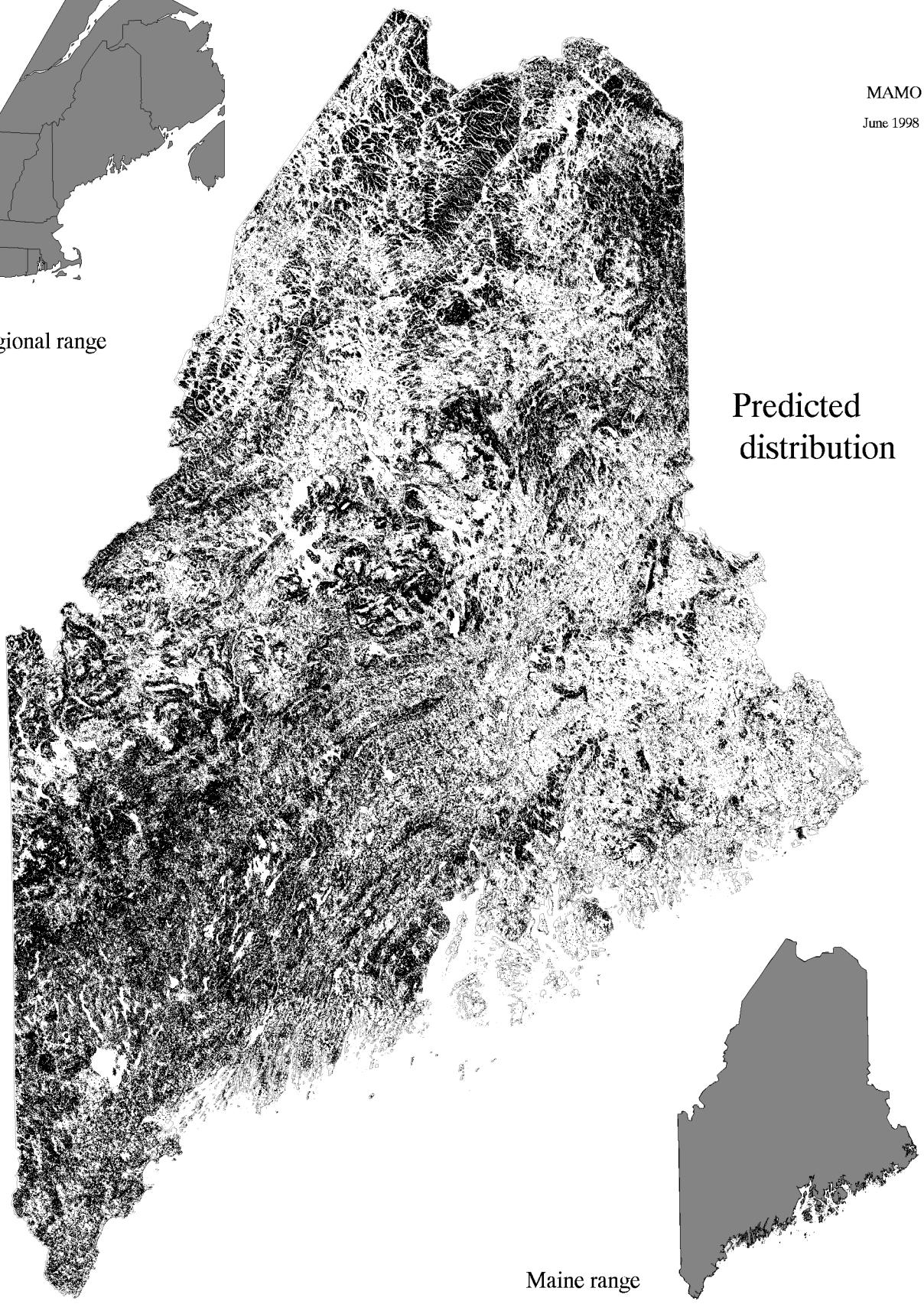
MAMO

June 1998



Regional range

Predicted distribution

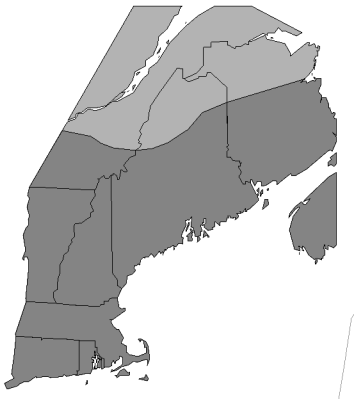


Maine range

Gray squirrel

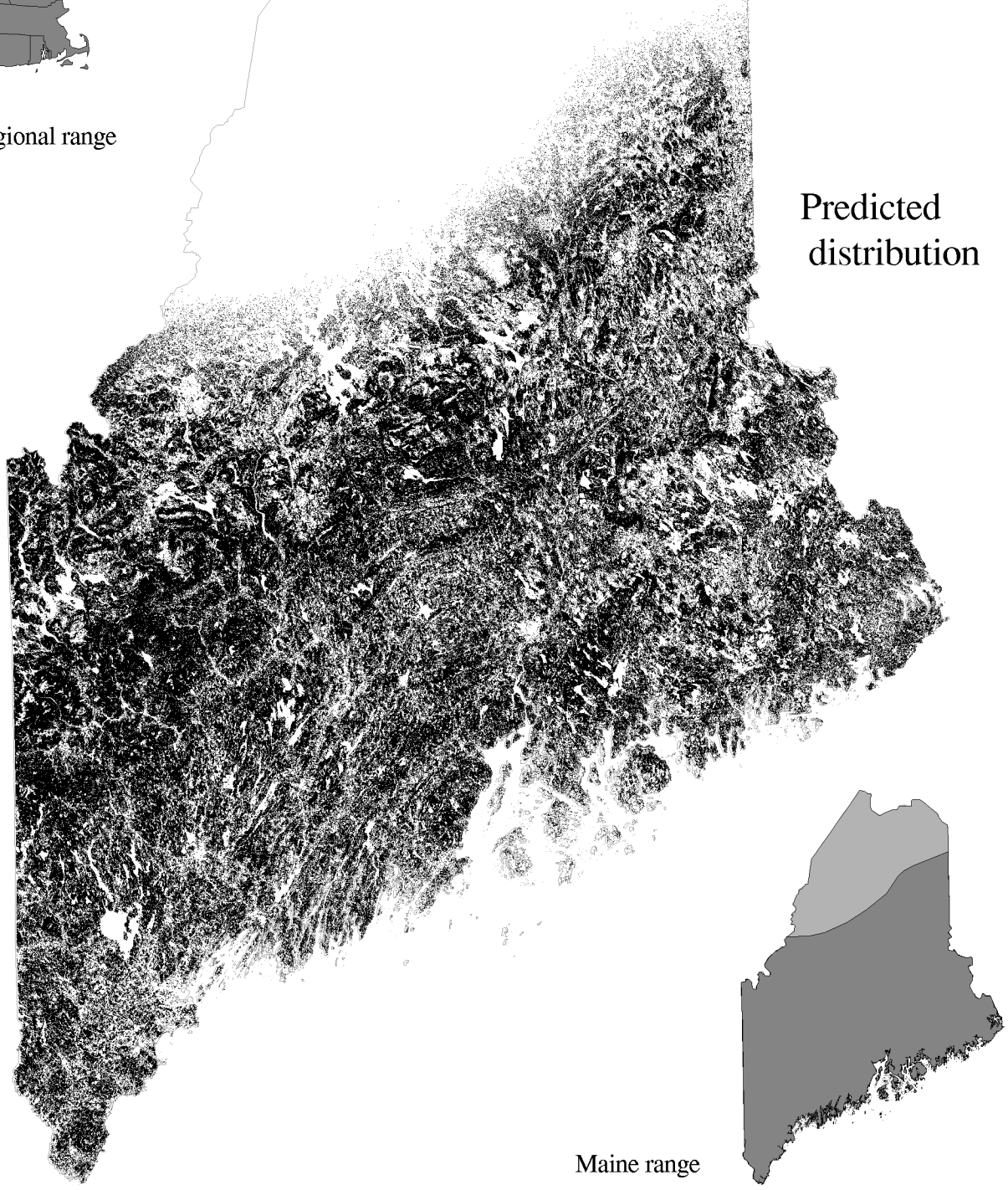
SCCA

June 1998



Regional range

Predicted distribution

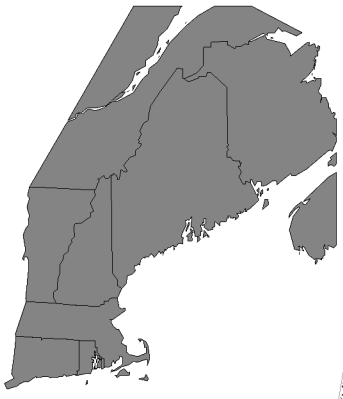


Maine range

Red squirrel

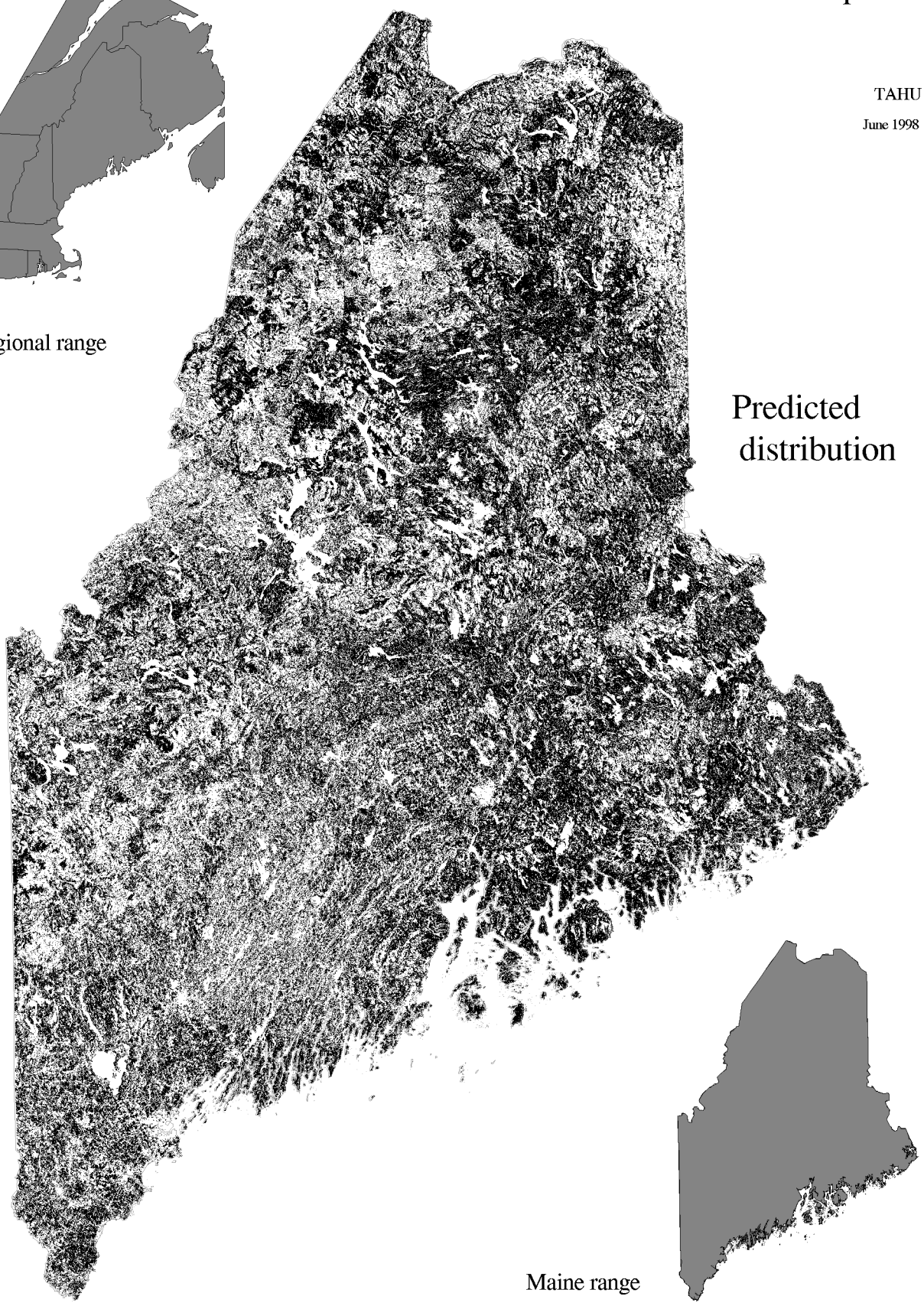
TAHU

June 1998



Regional range

Predicted distribution

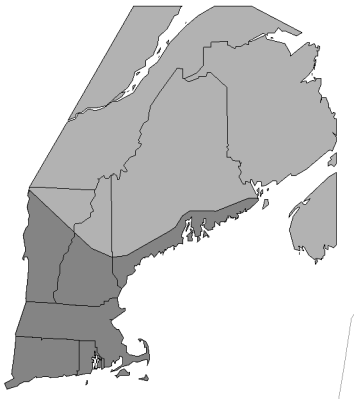


Maine range

Southern flying squirrel

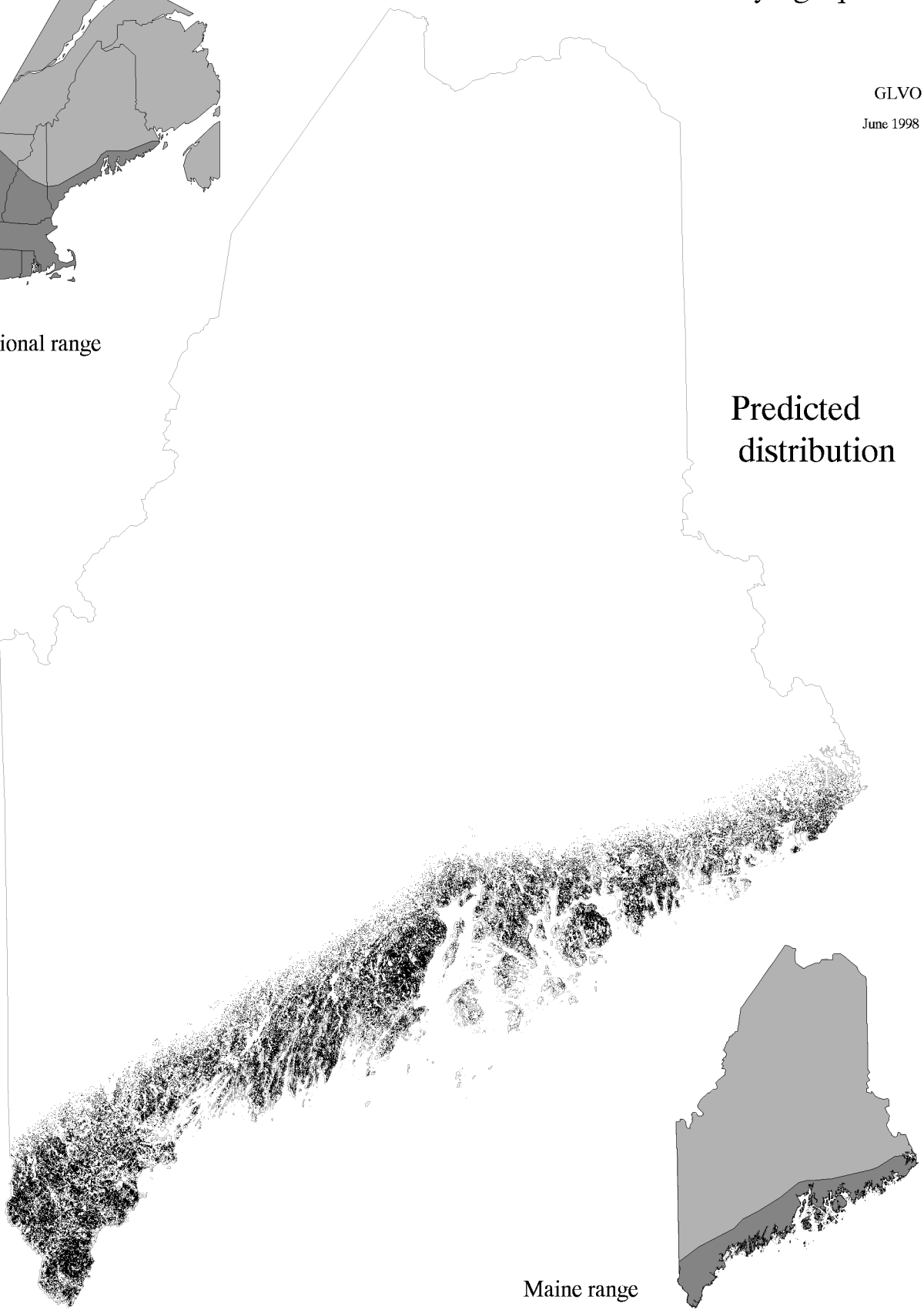
GLVO

June 1998



Regional range

Predicted distribution

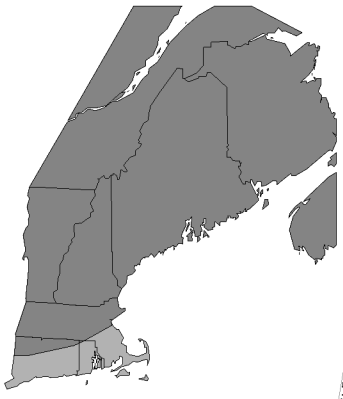


Maine range

Northern flying squirrel

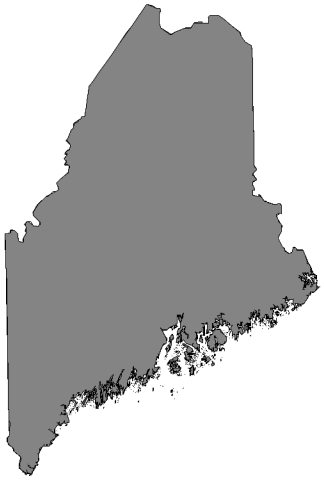
GLSA

June 1998



Regional range

Predicted distribution

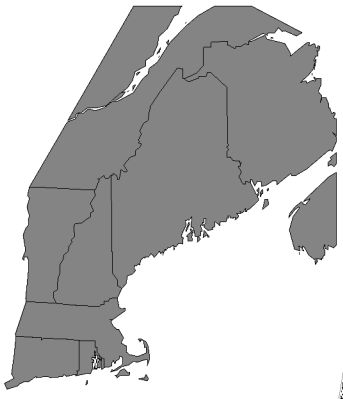


Maine range

American Beaver

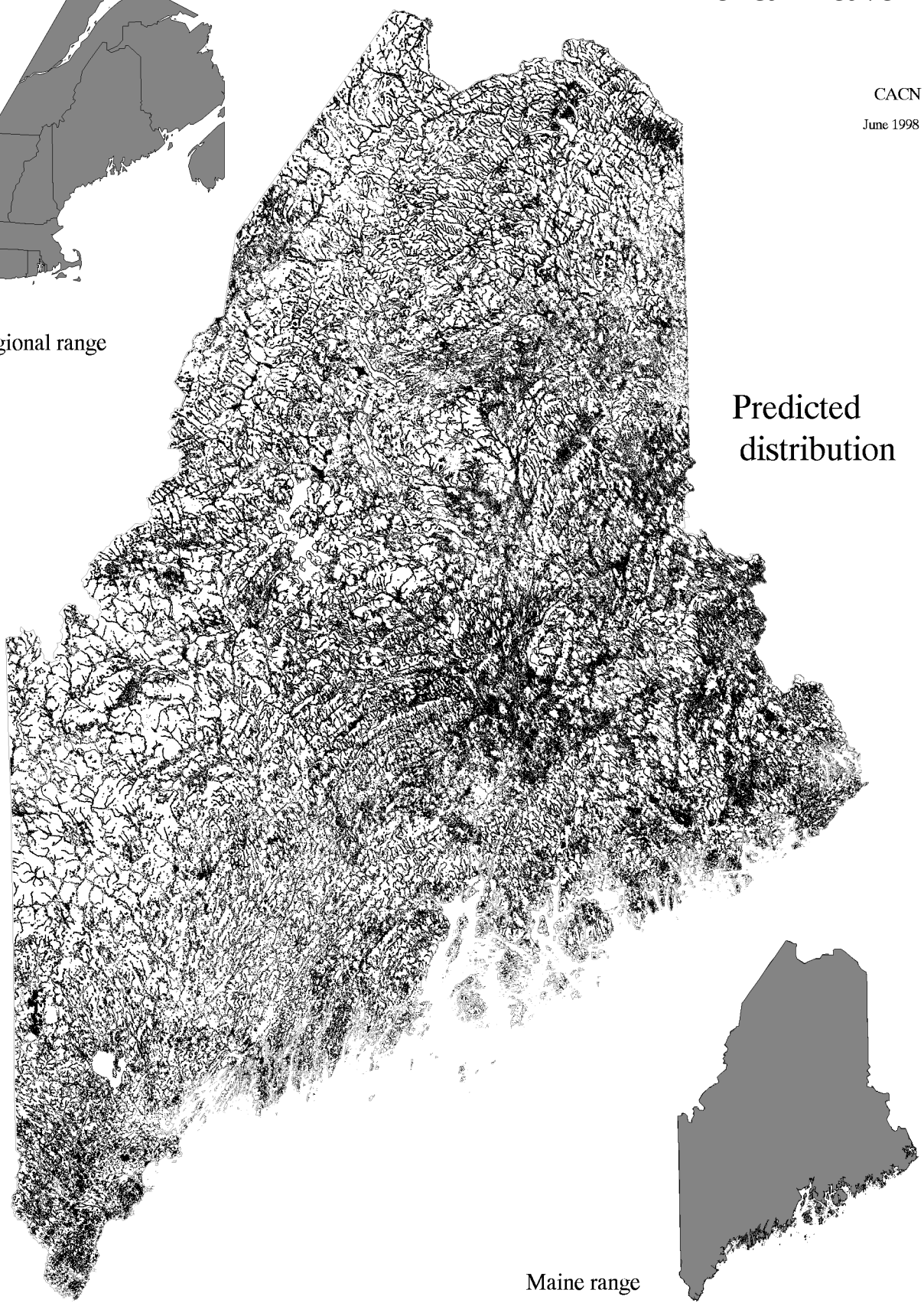
CACN

June 1998



Regional range

Predicted distribution

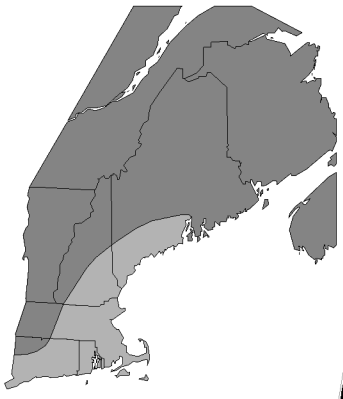


Maine range

Deer mouse

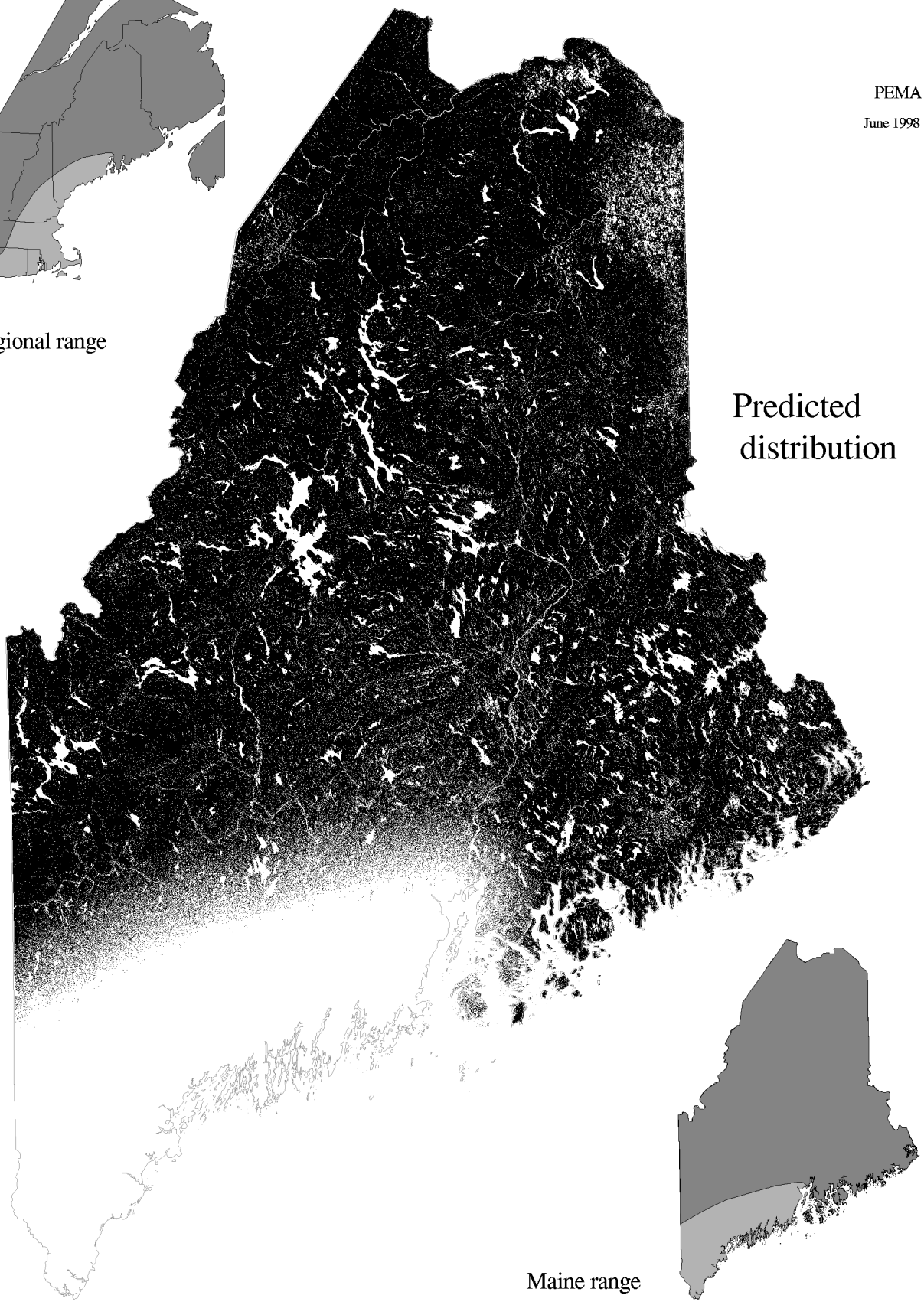
PEMA

June 1998



Regional range

Predicted distribution

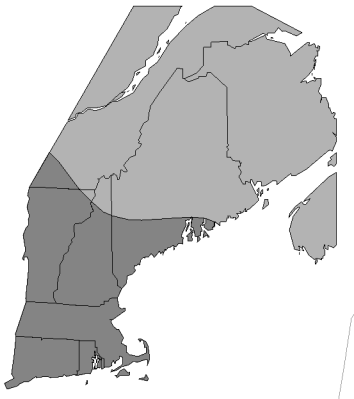


Maine range

White-footed mouse

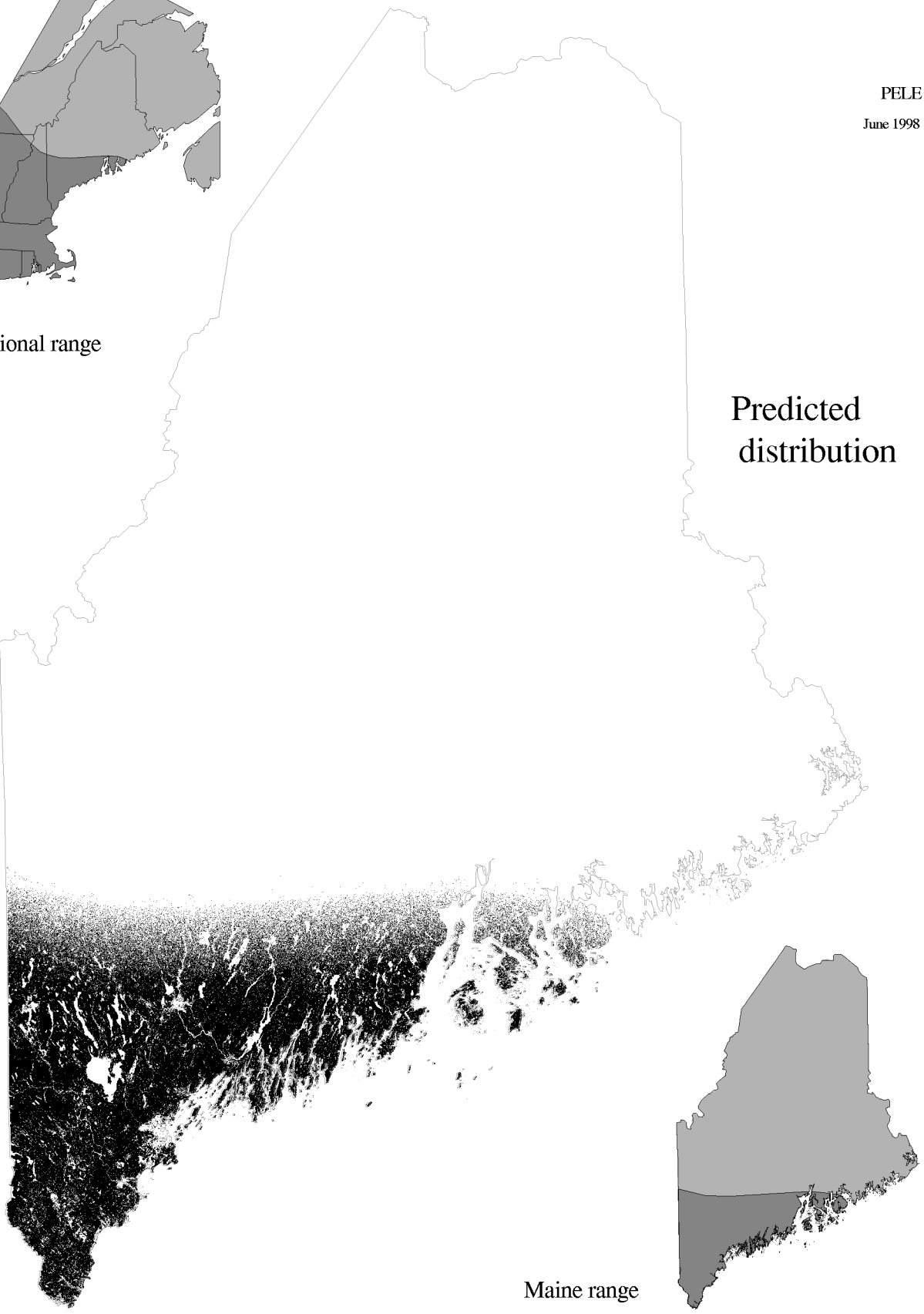
PELE

June 1998



Regional range

Predicted distribution

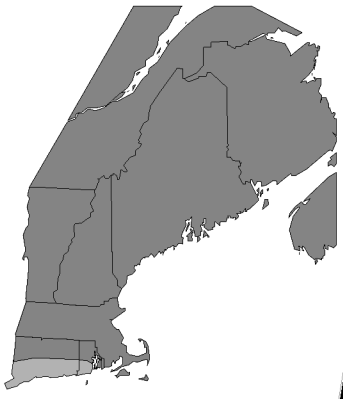


Maine range

Southern red-backed vole

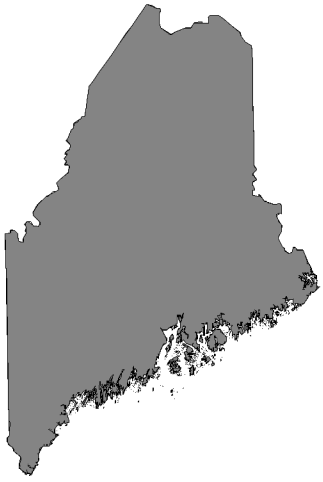
CLGA

June 1998



Regional range

Predicted distribution

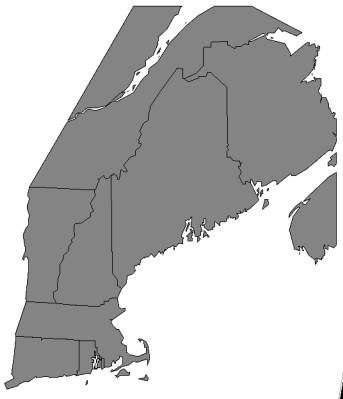


Maine range

Meadow vole

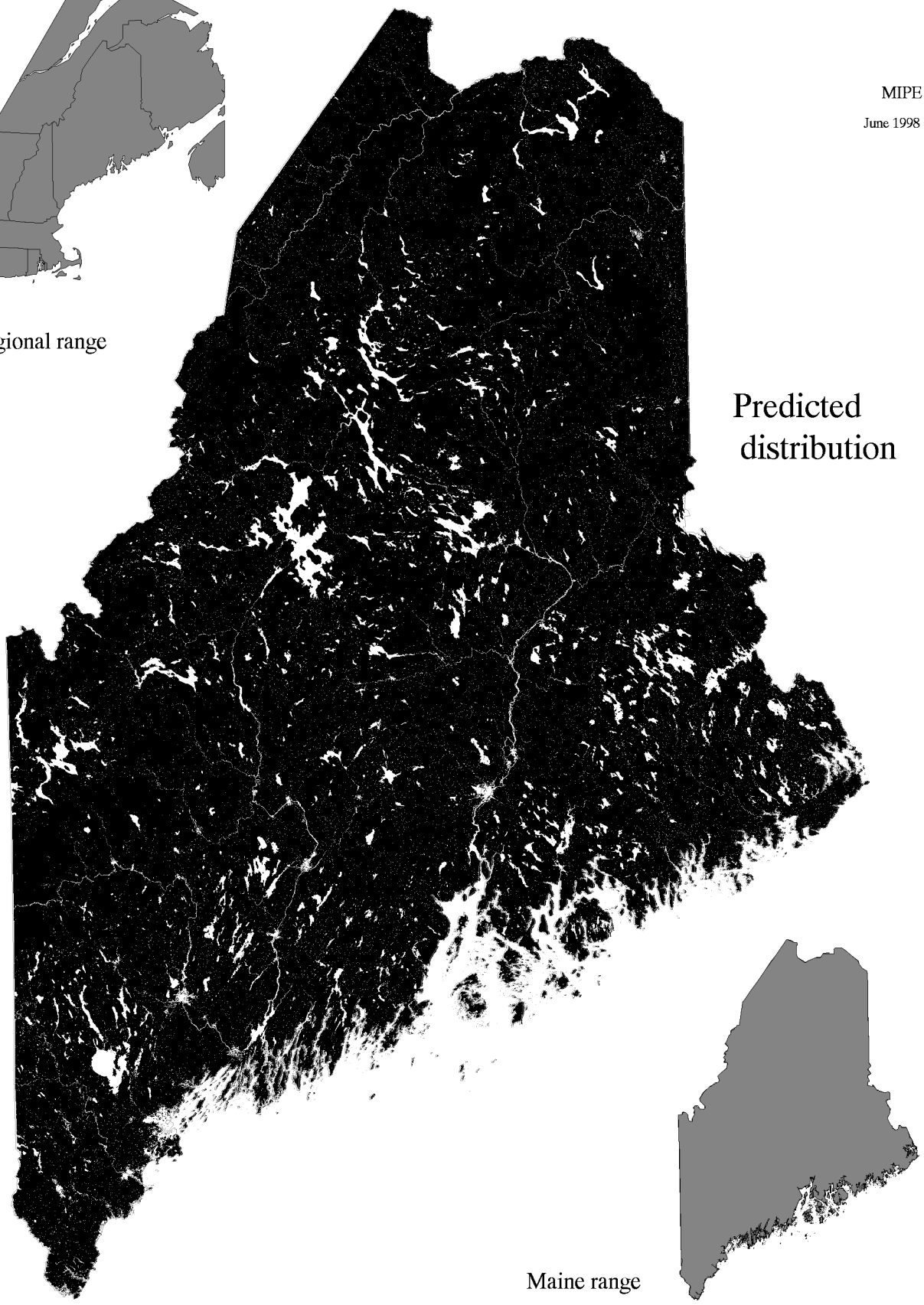
MIPE

June 1998



Regional range

Predicted distribution

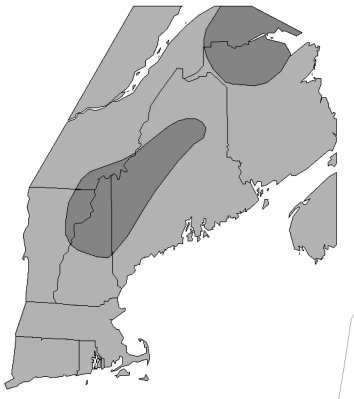


Maine range

Rock vole

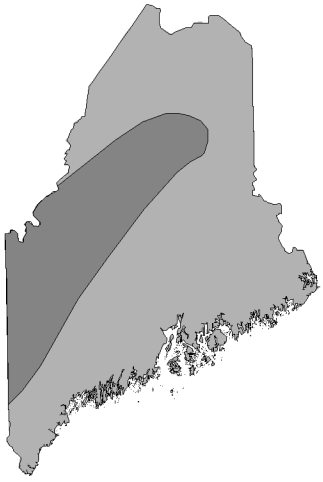
MICH

June 1998



Regional range

Predicted distribution

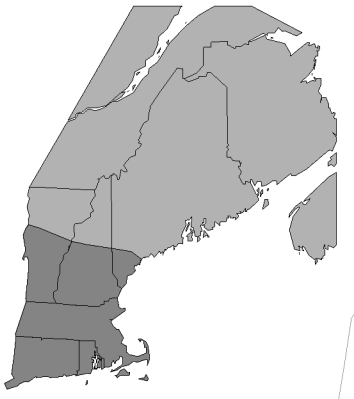


Maine range

Woodland vole

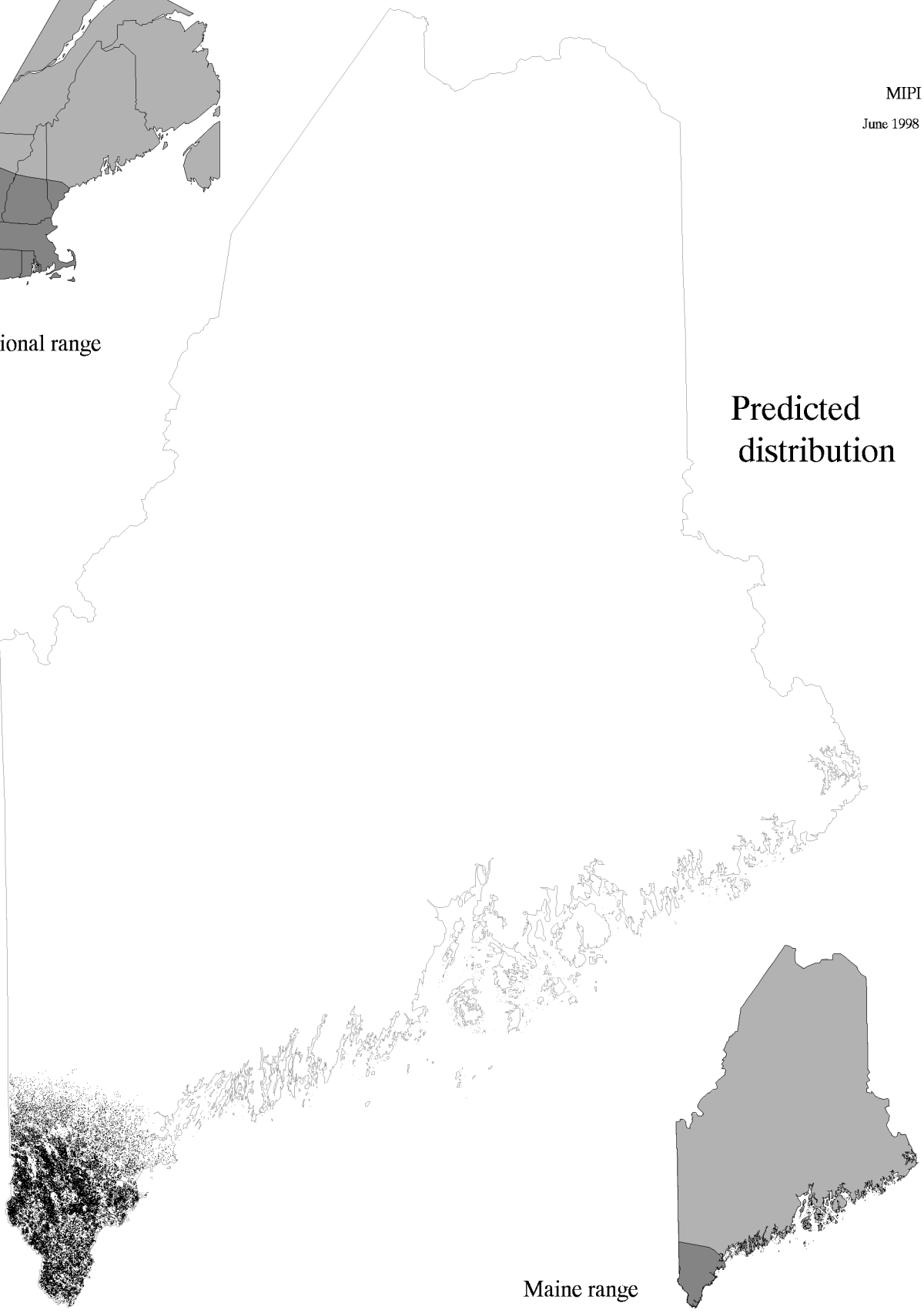
MIPI

June 1998



Regional range

Predicted distribution

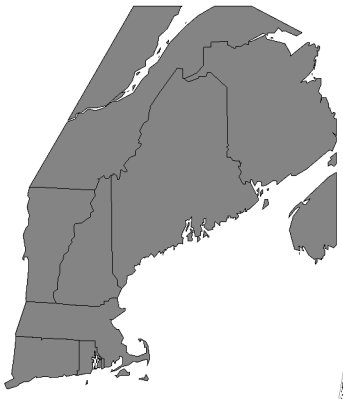


Maine range

Muskrat

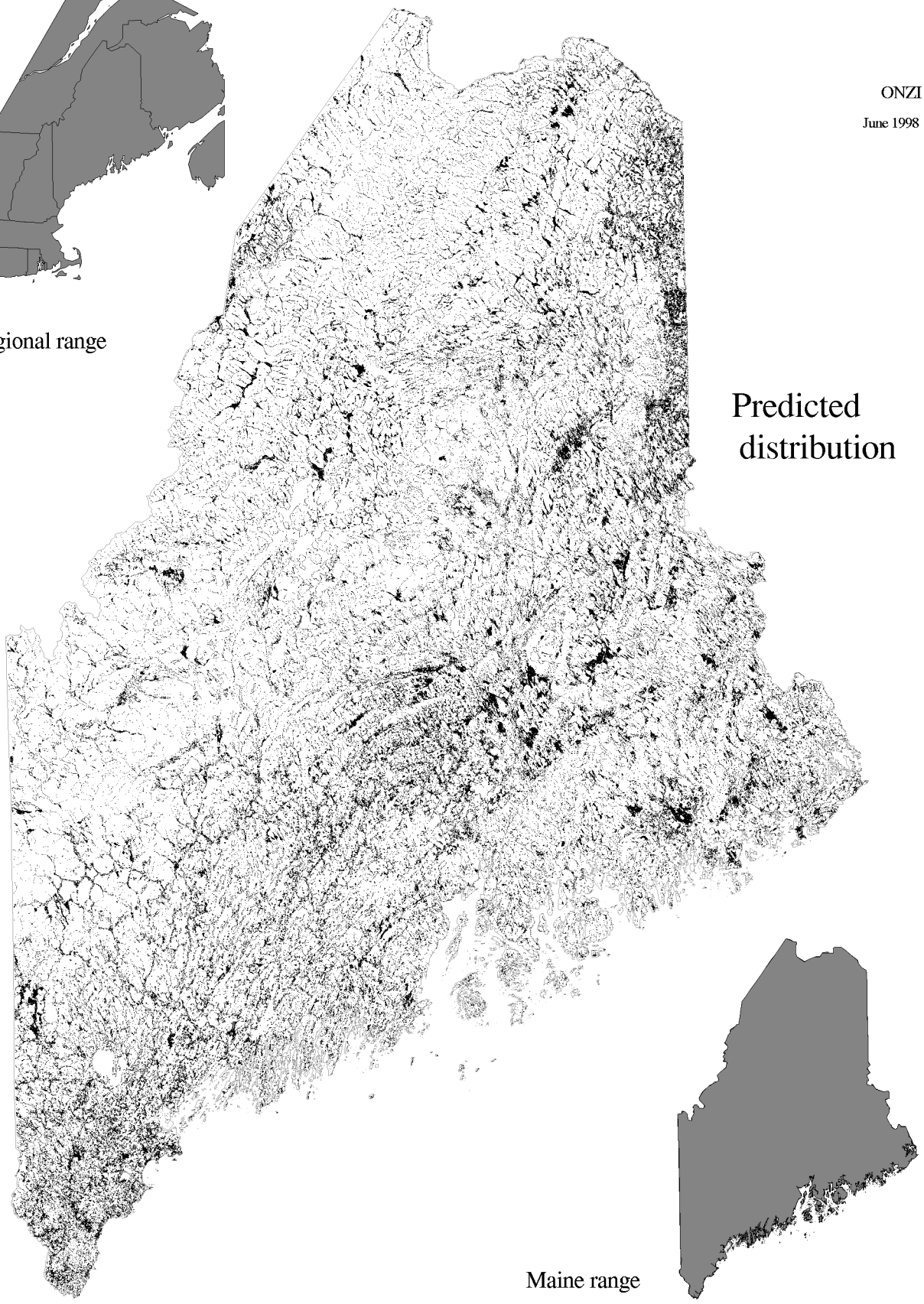
ONZI

June 1998



Regional range

Predicted distribution

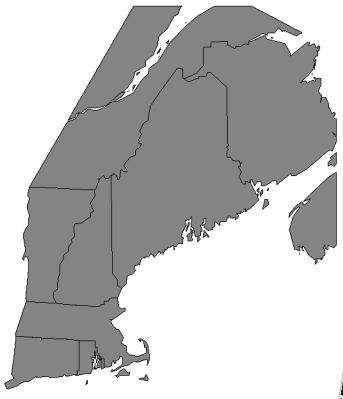


Maine range

Southern bog lemming

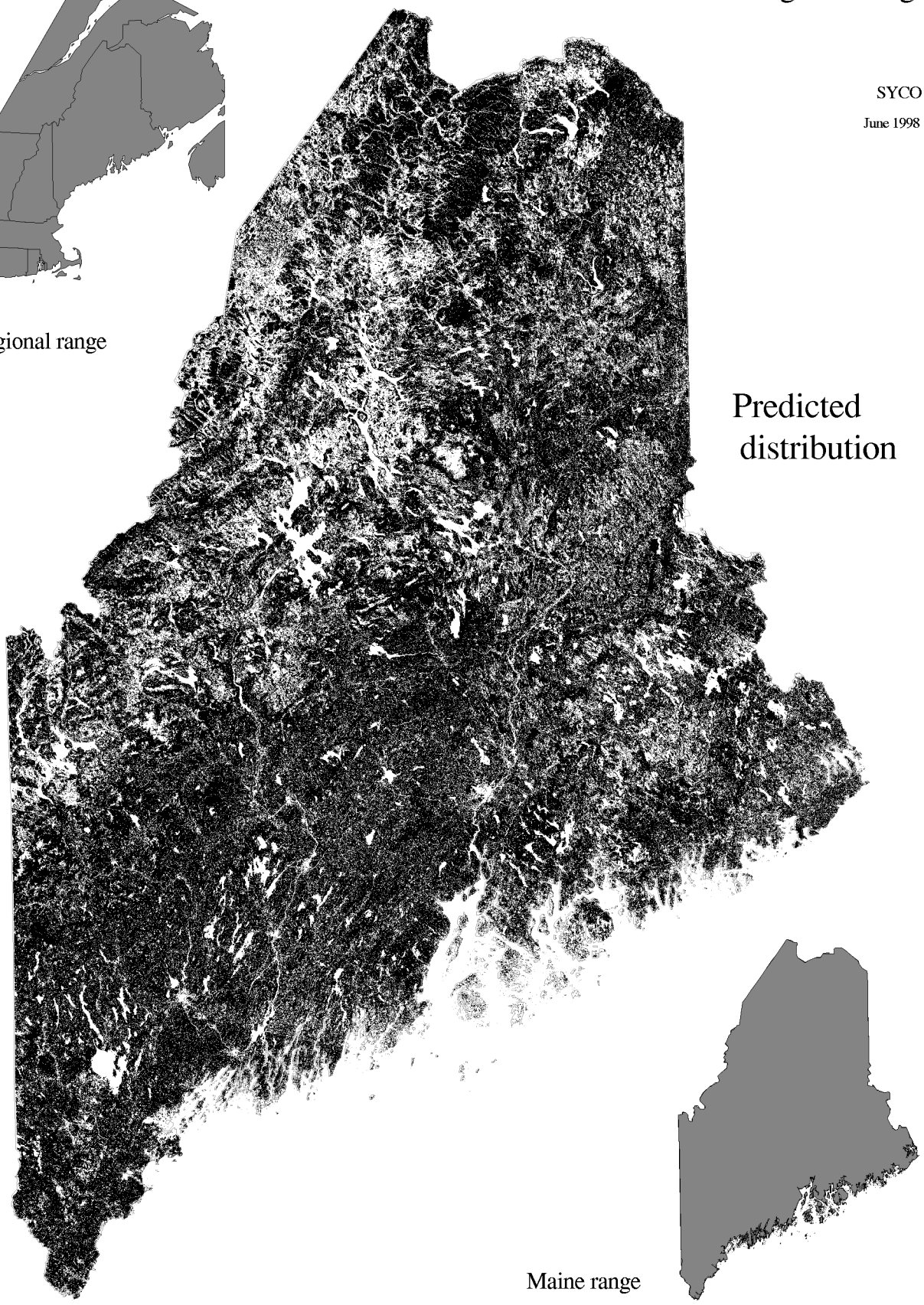
SYCO

June 1998



Regional range

Predicted distribution

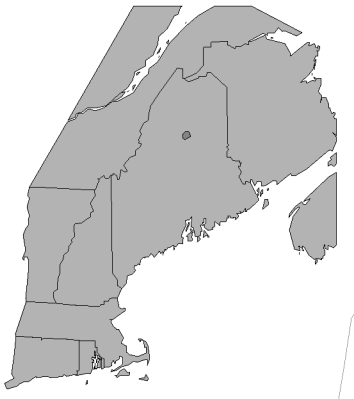


Maine range

Northern bog lemming

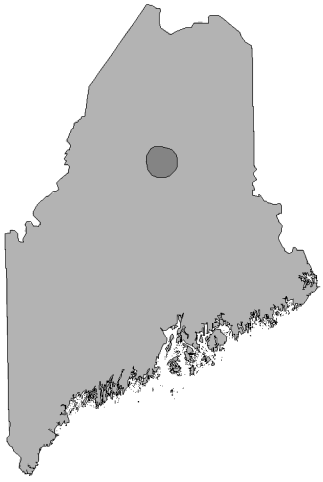
SYBO

June 1998



Regional range

Predicted distribution

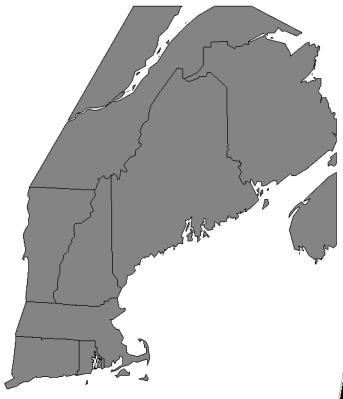


Maine range

Meadow jumping mouse

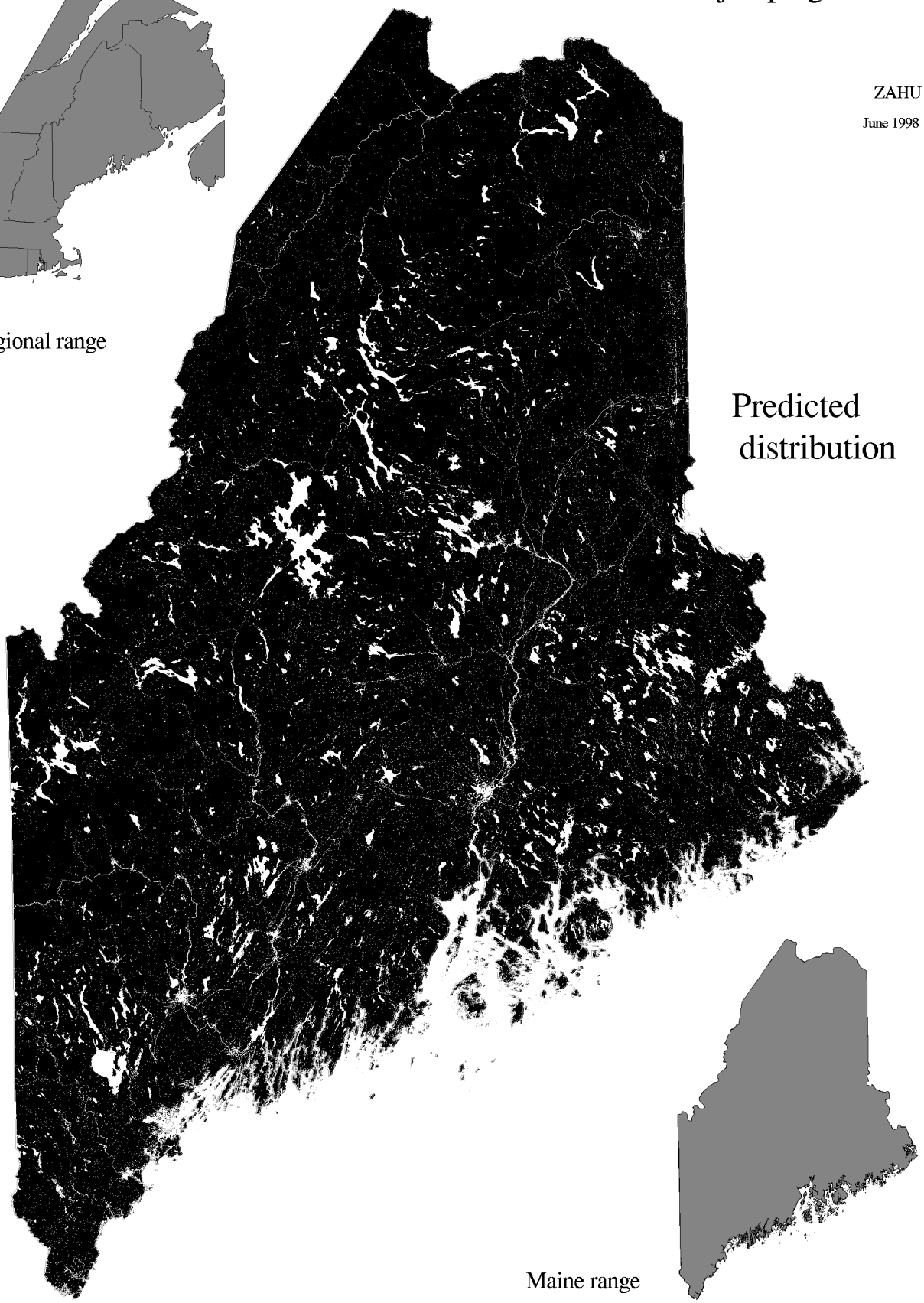
ZAHU

June 1998



Regional range

Predicted distribution

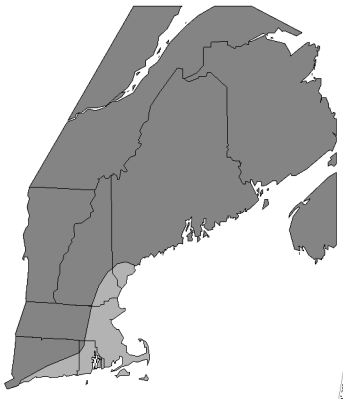


Maine range

Woodland jumping mouse

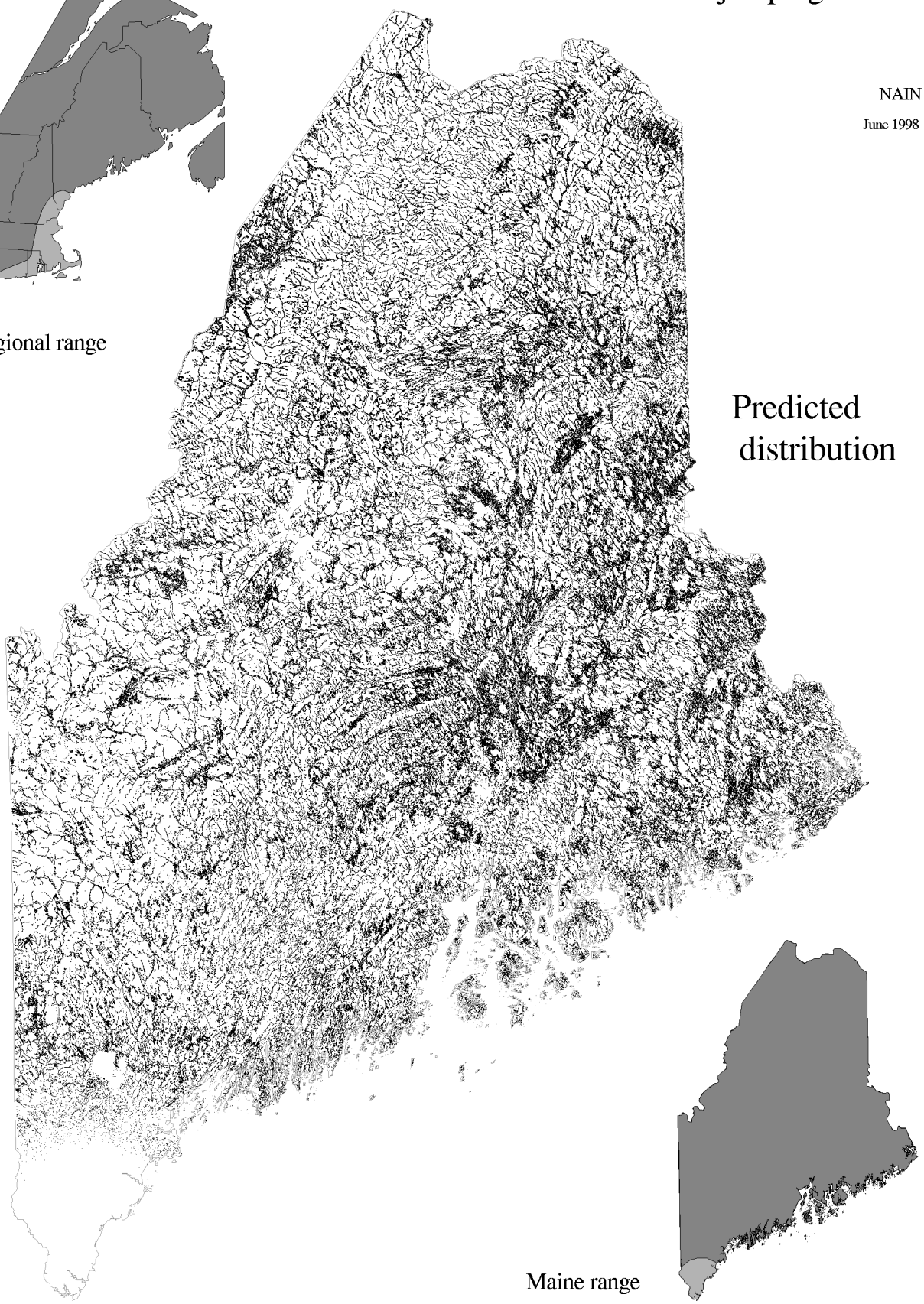
NAIN

June 1998



Regional range

Predicted distribution

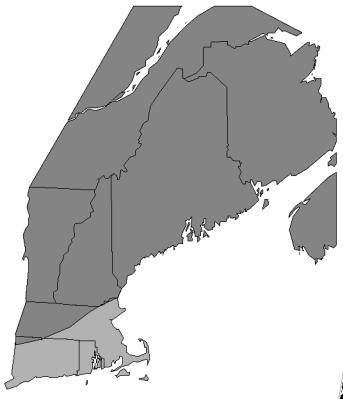


Maine range

Common Porcupine

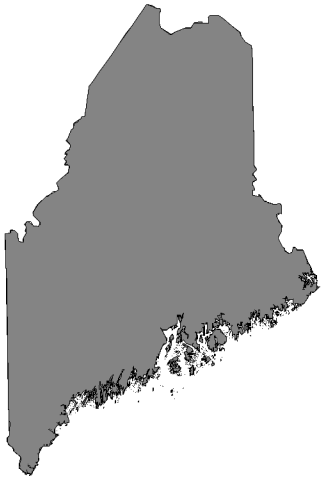
ERDO

June 1998



Regional range

Predicted distribution

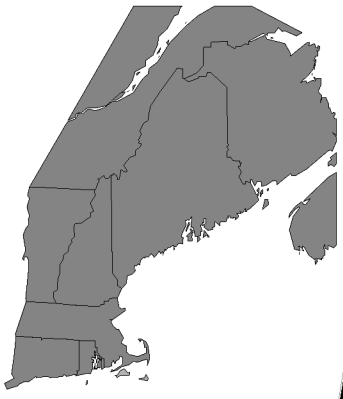


Maine range

Coyote

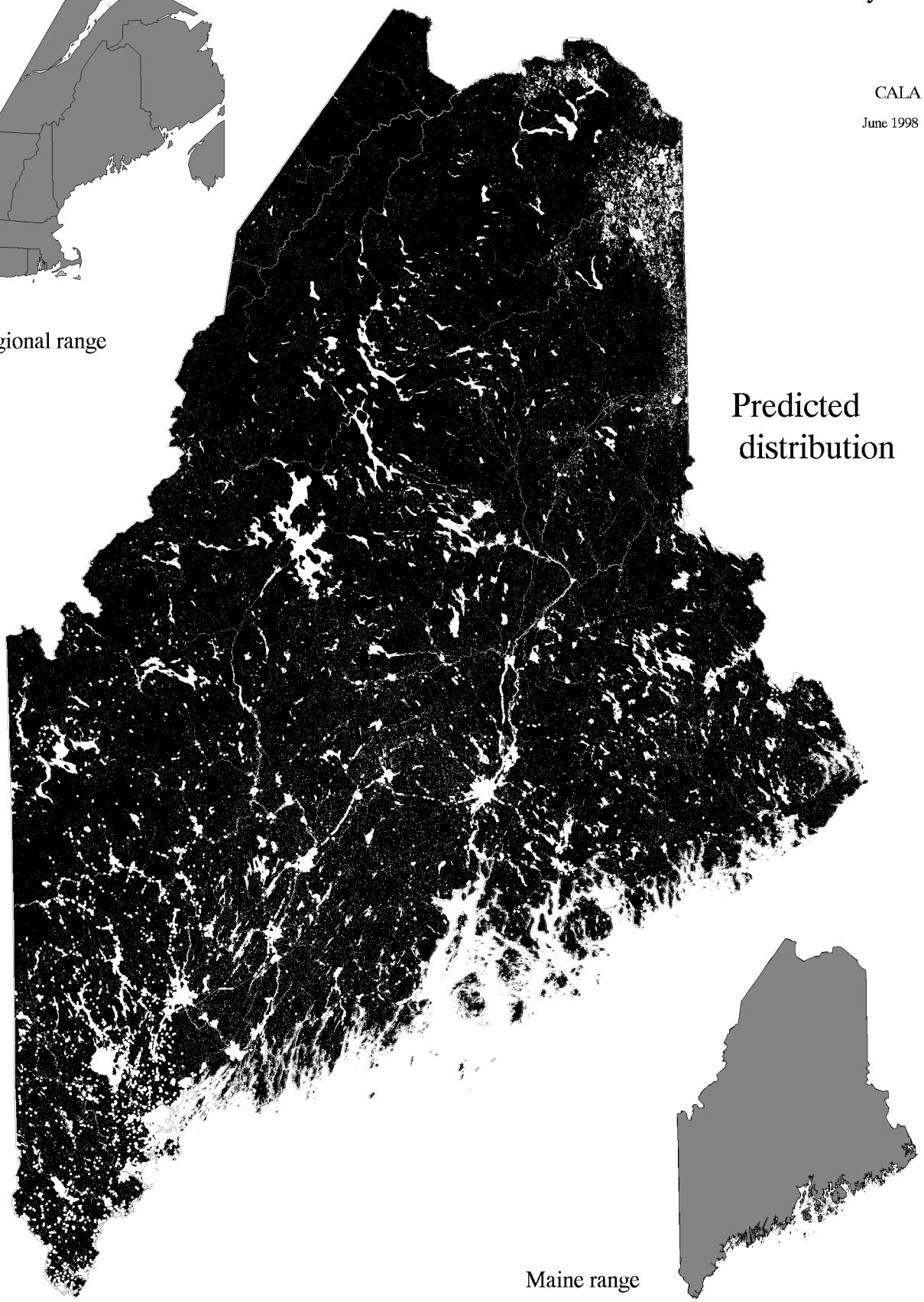
CALA

June 1998



Regional range

Predicted distribution

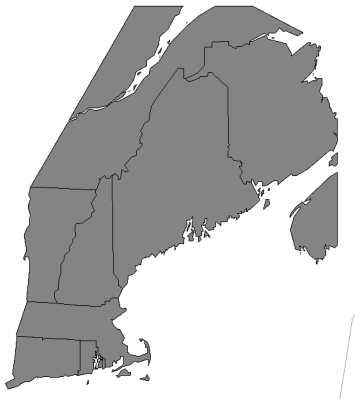


Maine range

Red fox

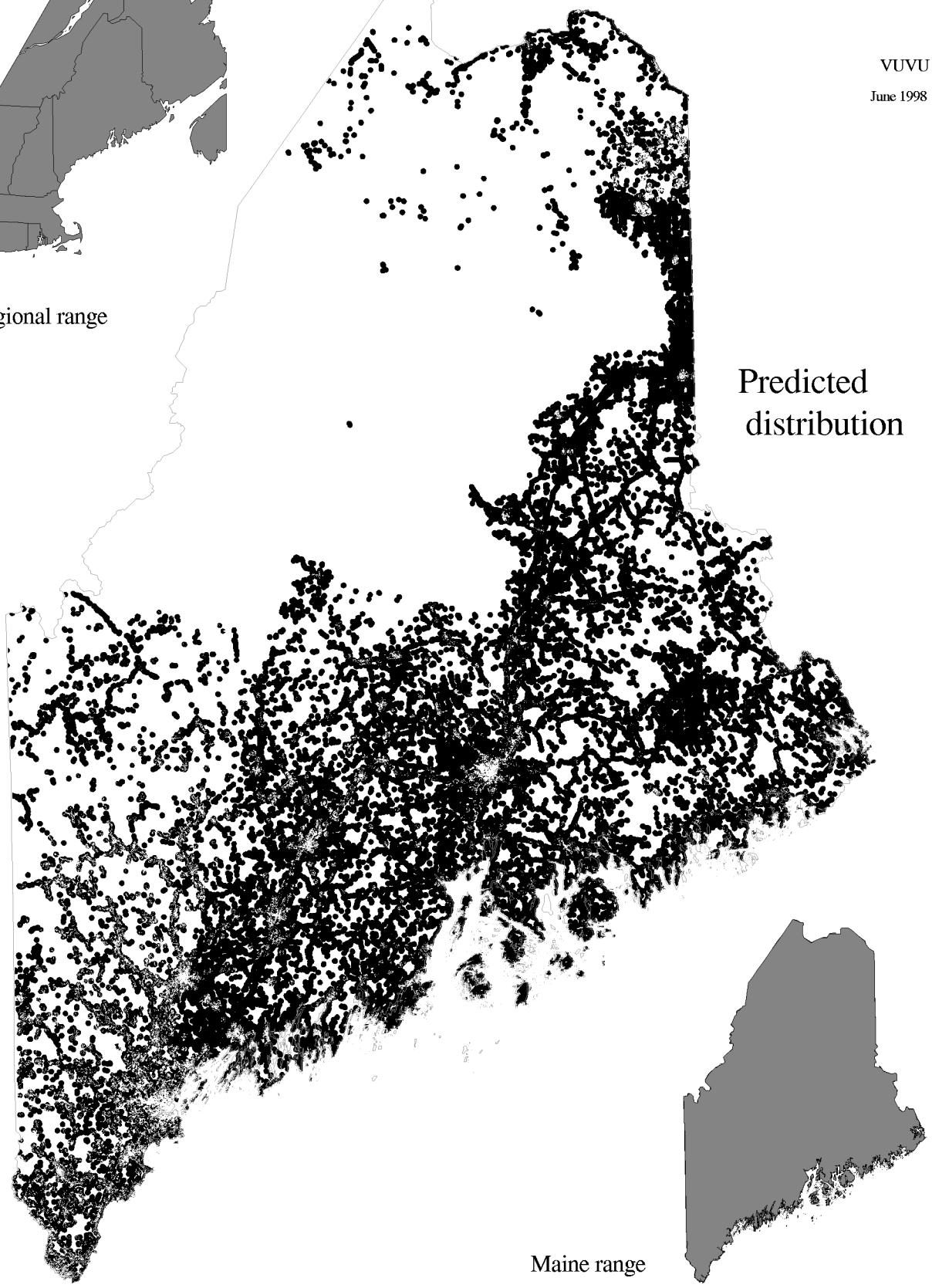
VUVU

June 1998



Regional range

Predicted distribution

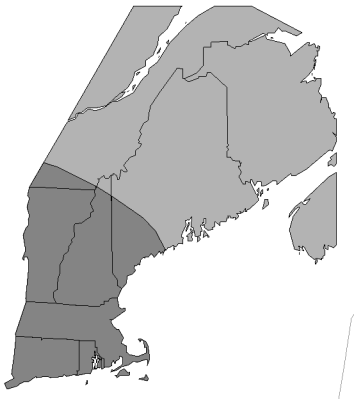


Maine range

Gray fox

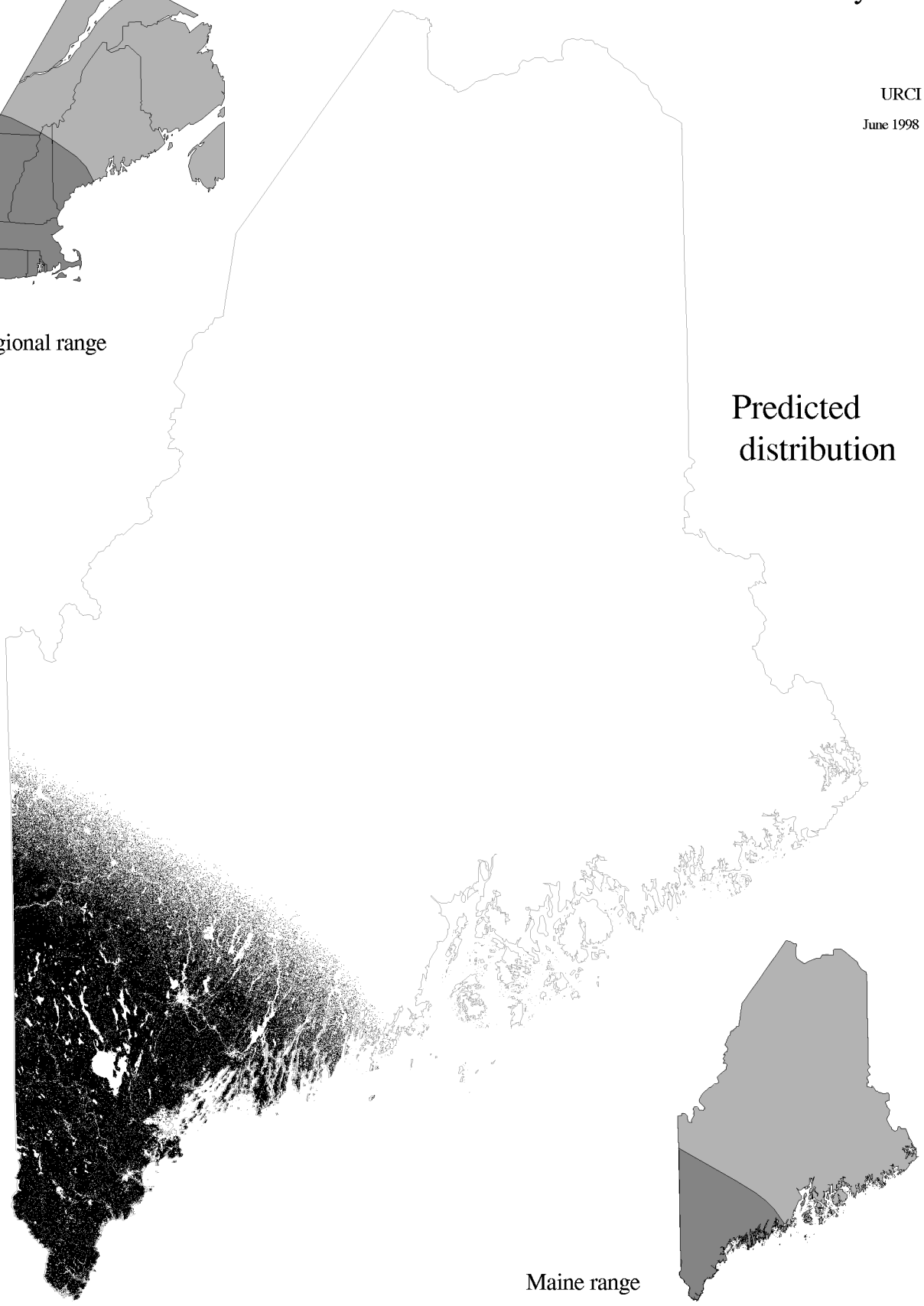
URCI

June 1998



Regional range

Predicted distribution

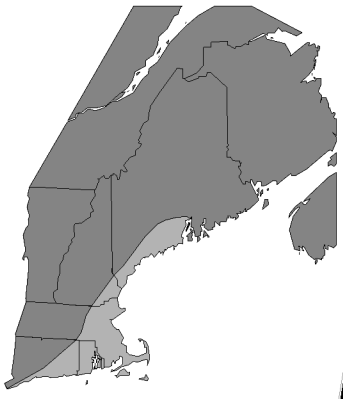


Maine range

Black bear

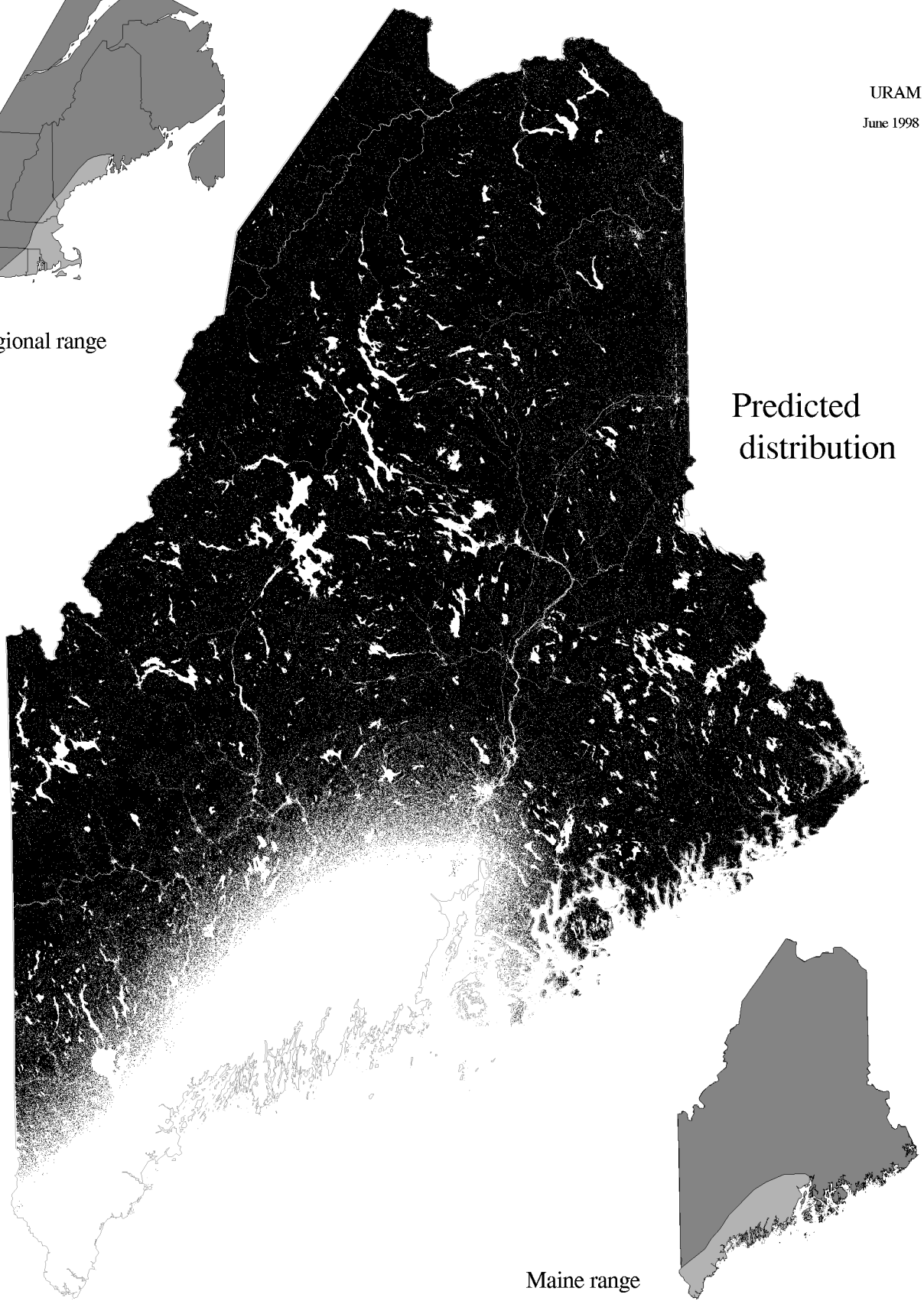
URAM

June 1998



Regional range

Predicted distribution

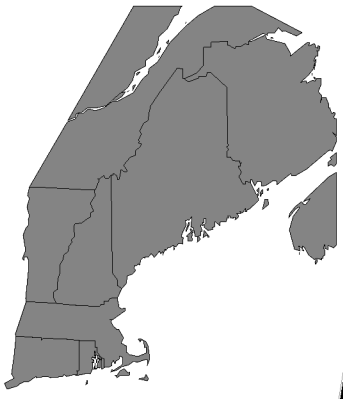


Maine range

Common Raccoon

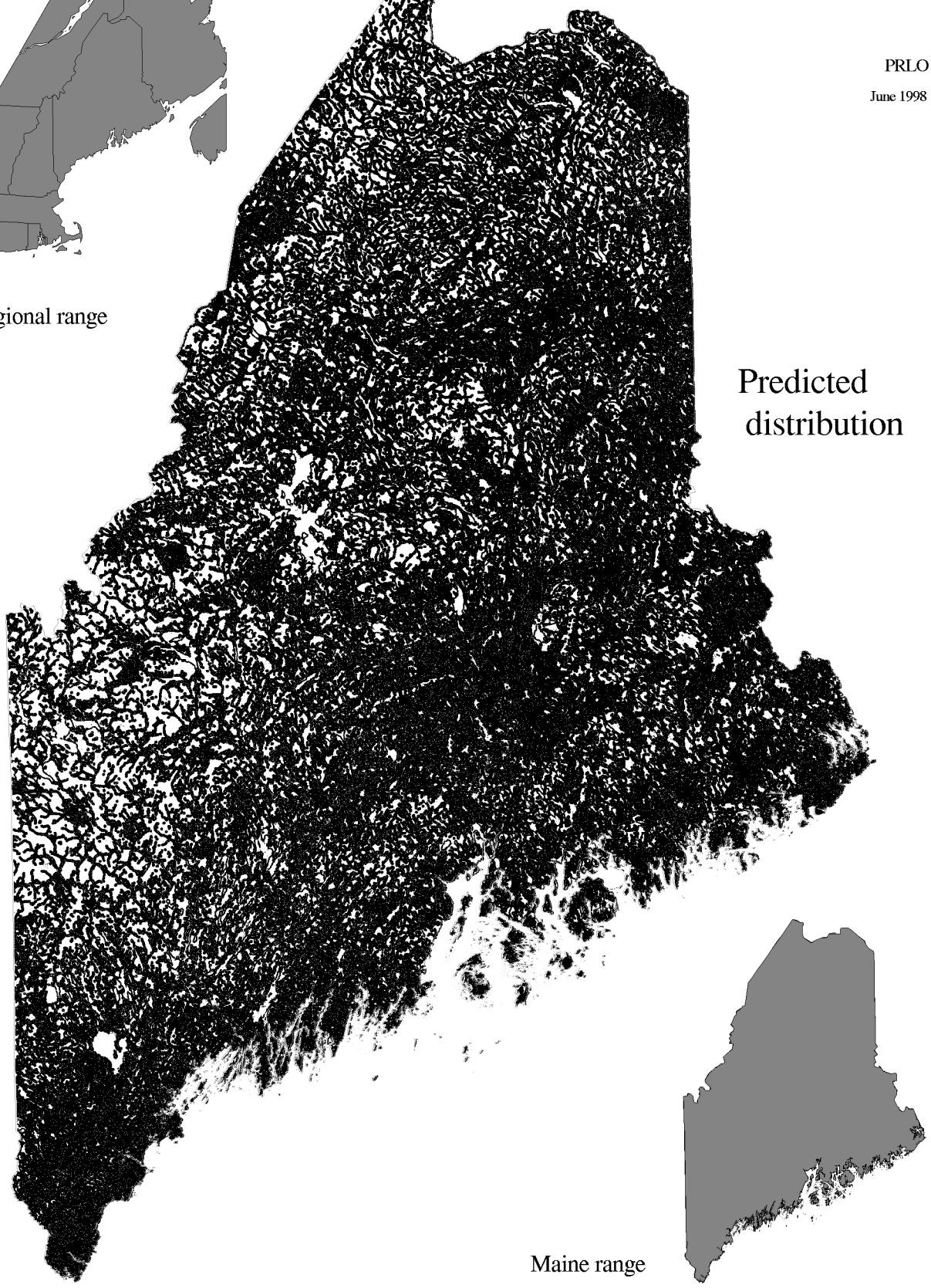
PRLO

June 1998



Regional range

Predicted distribution

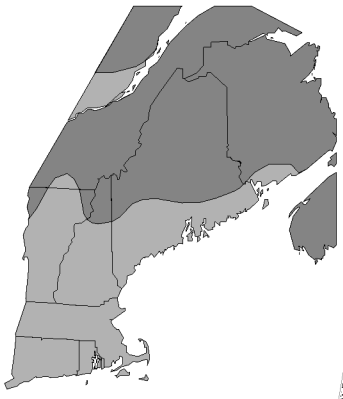


Maine range

Marten

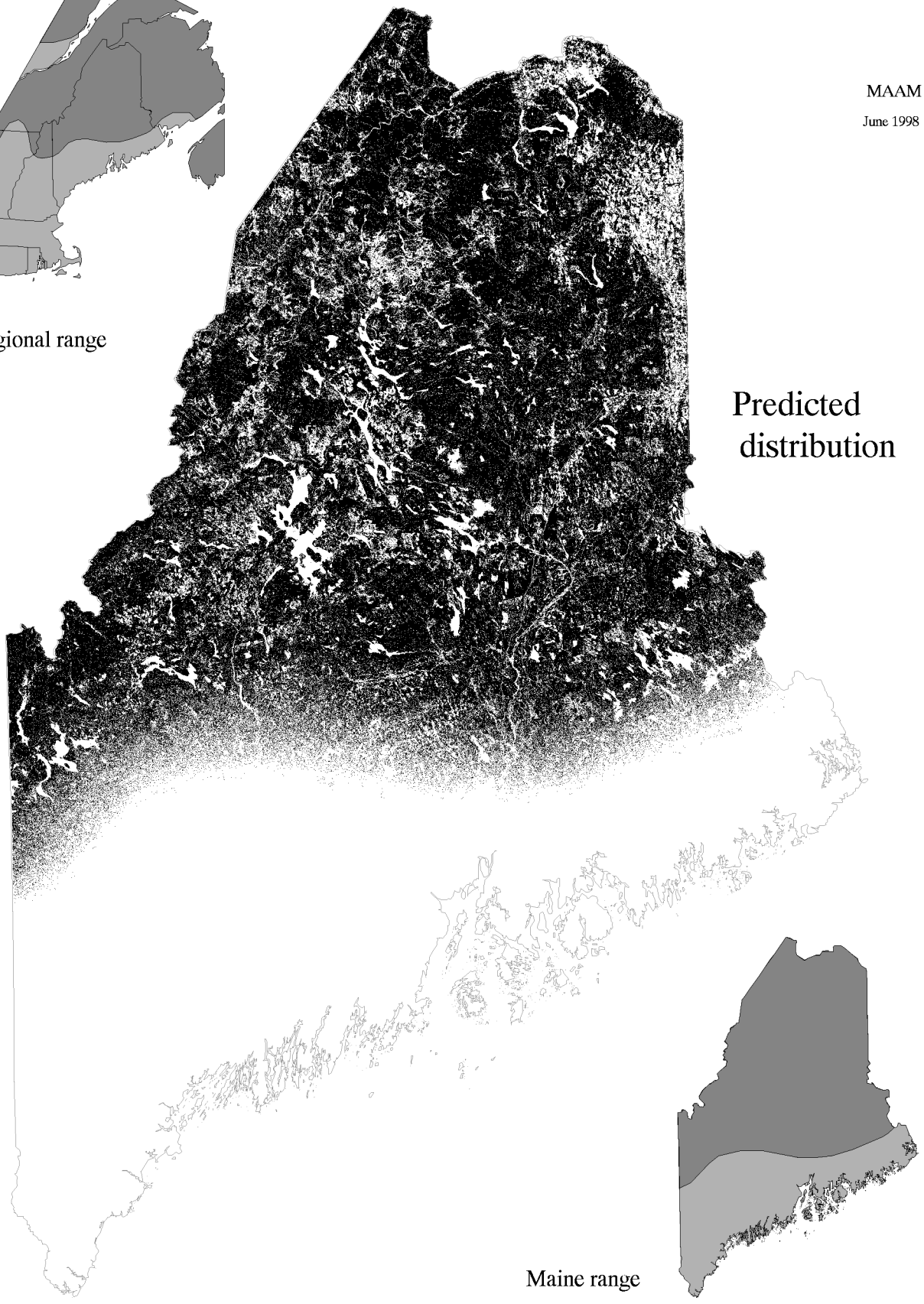
MAAM

June 1998



Regional range

Predicted distribution

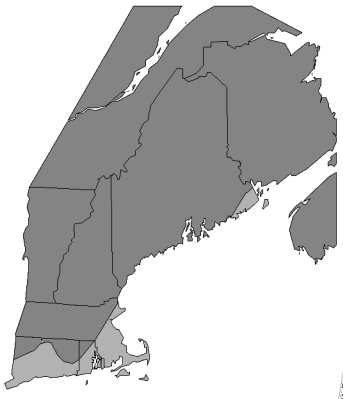


Maine range

Fisher

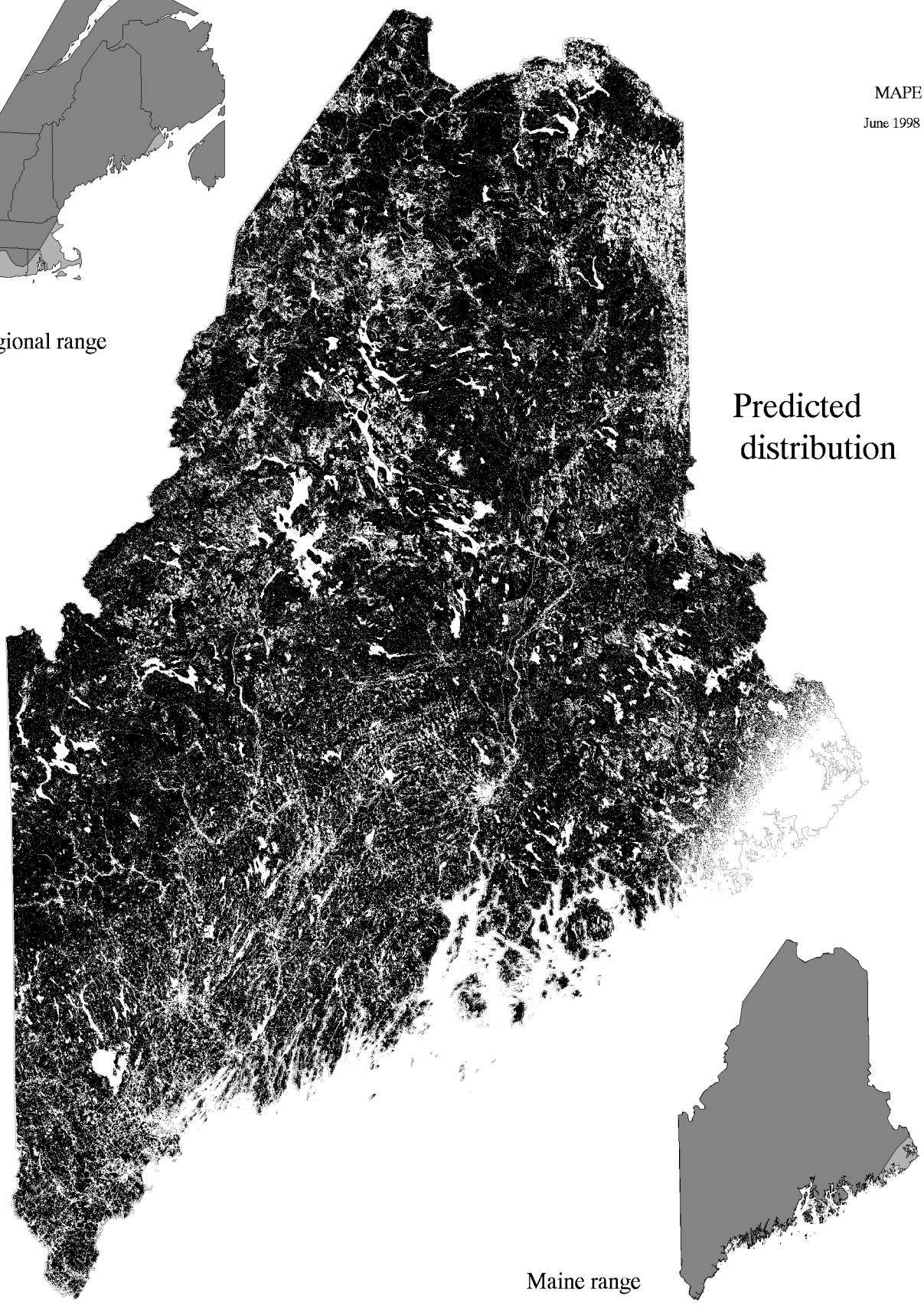
MAPE

June 1998



Regional range

Predicted distribution

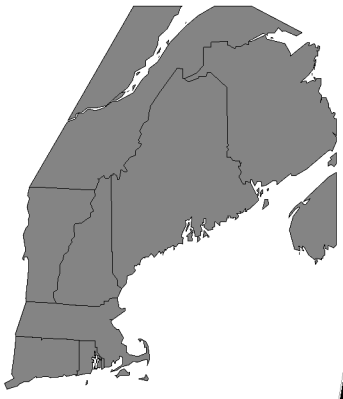


Maine range

Ermine

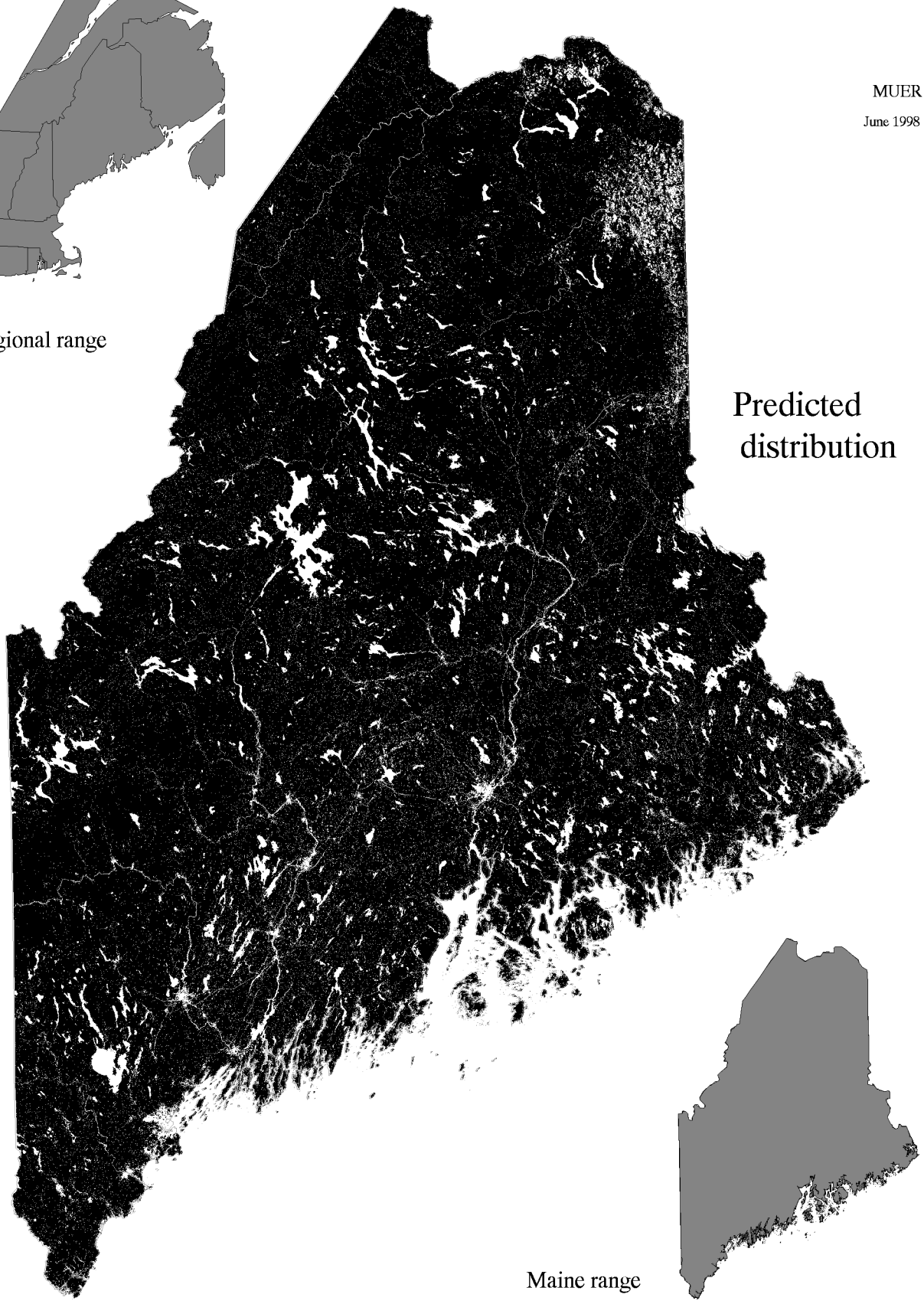
MUER

June 1998



Regional range

Predicted distribution

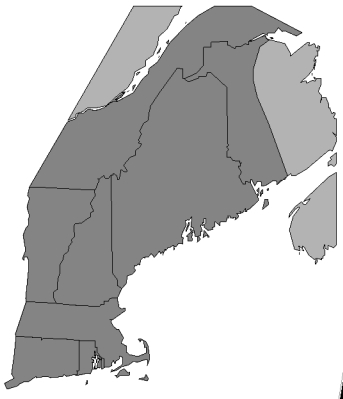


Maine range

Long-tailed weasel

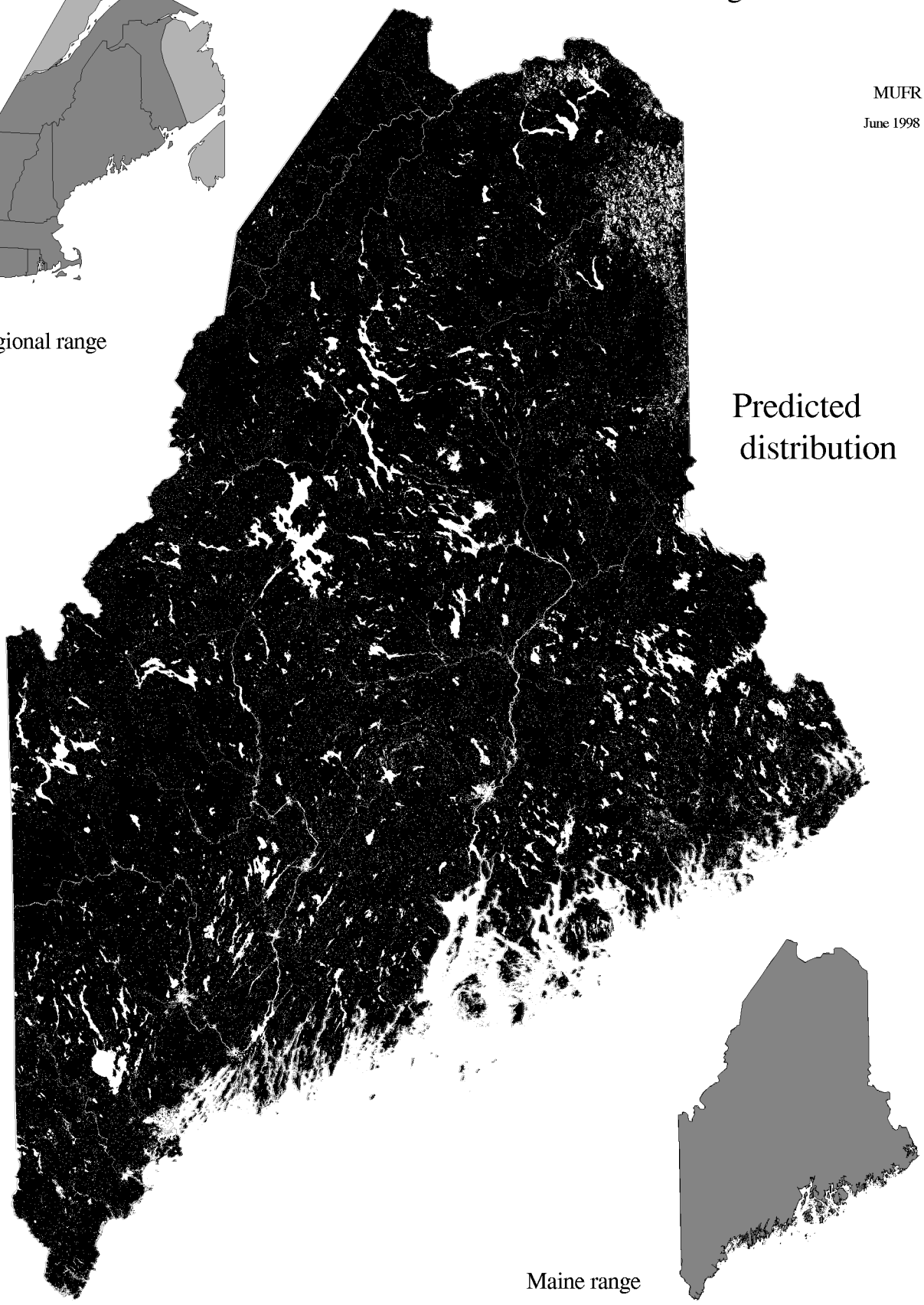
MUFR

June 1998



Regional range

Predicted distribution

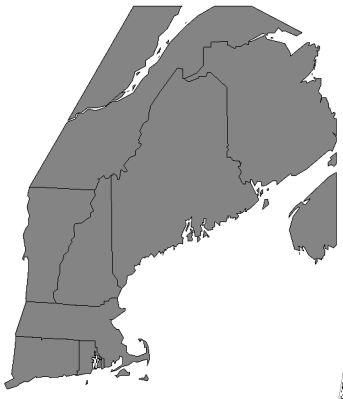


Maine range

Mink

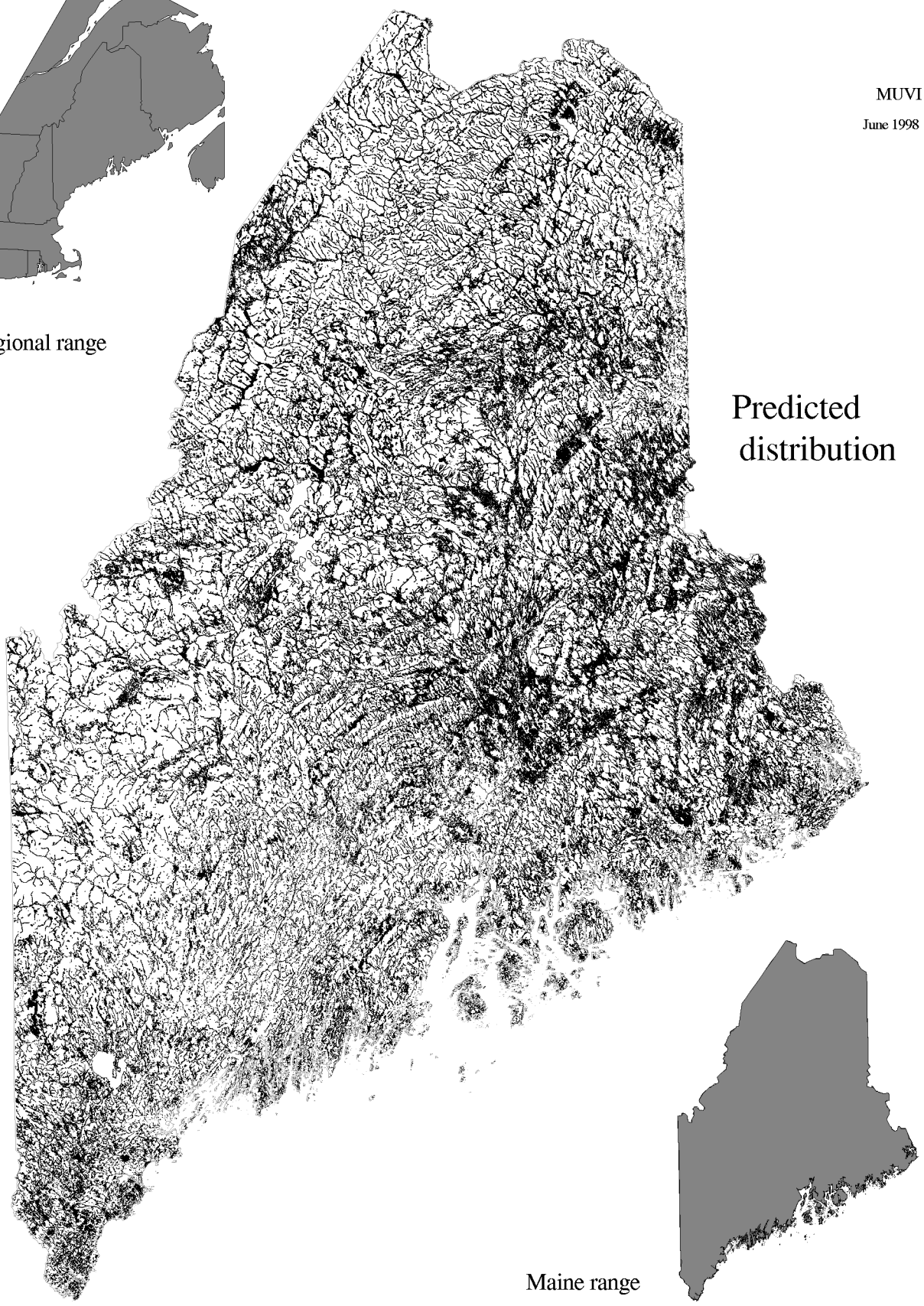
MUVI

June 1998



Regional range

Predicted distribution

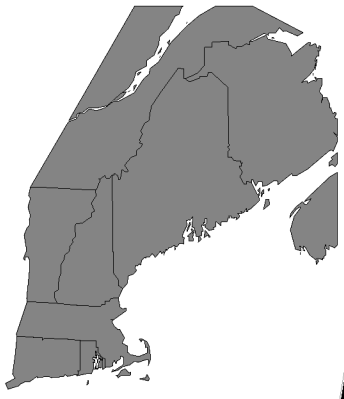


Maine range

Striped skunk

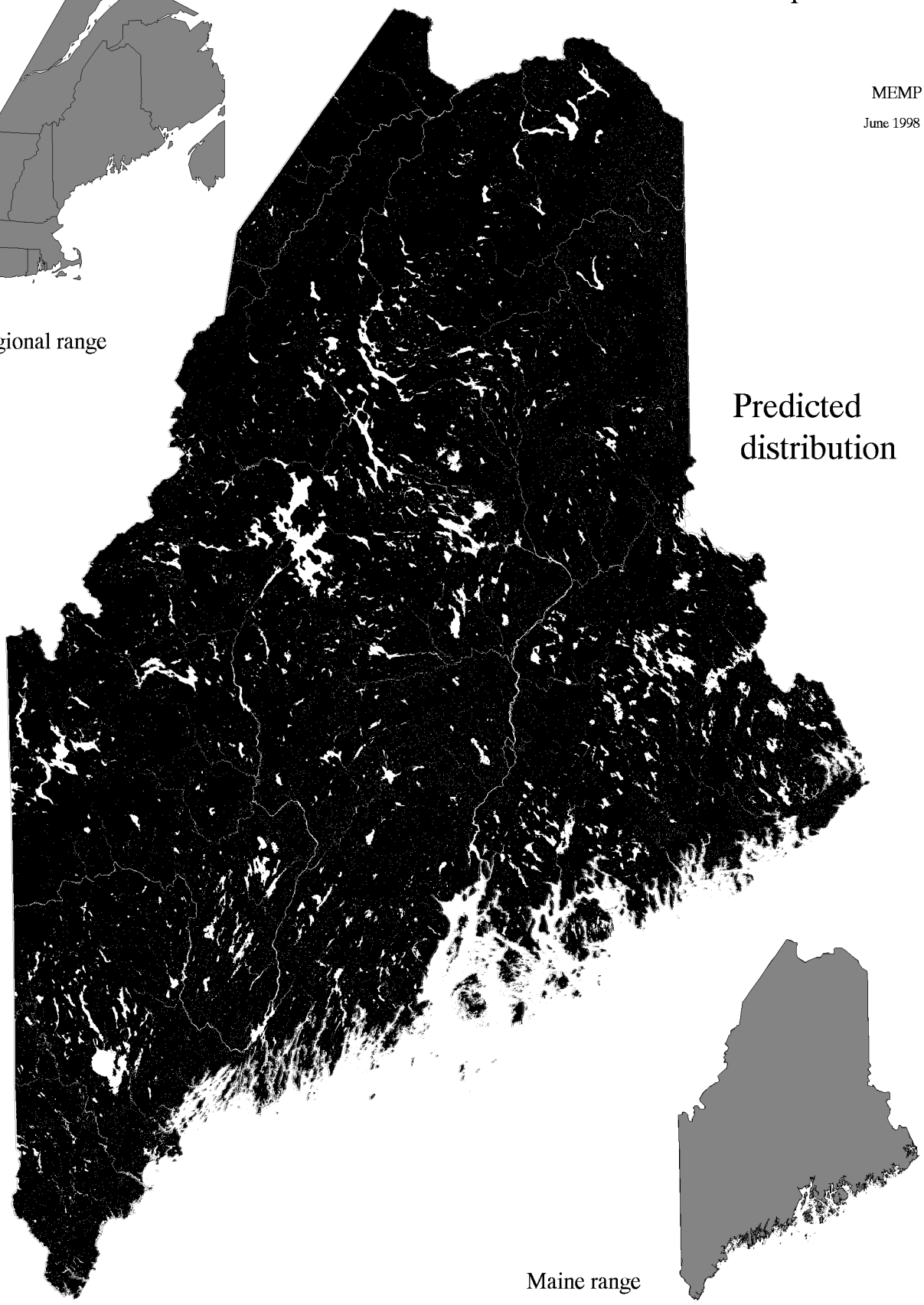
MEMP

June 1998



Regional range

Predicted distribution

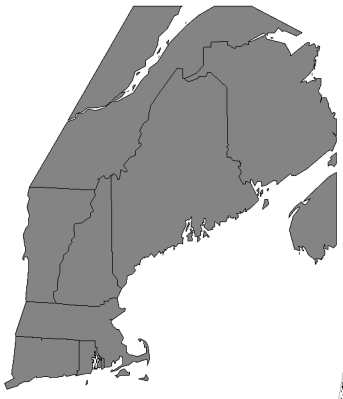


Maine range

River otter

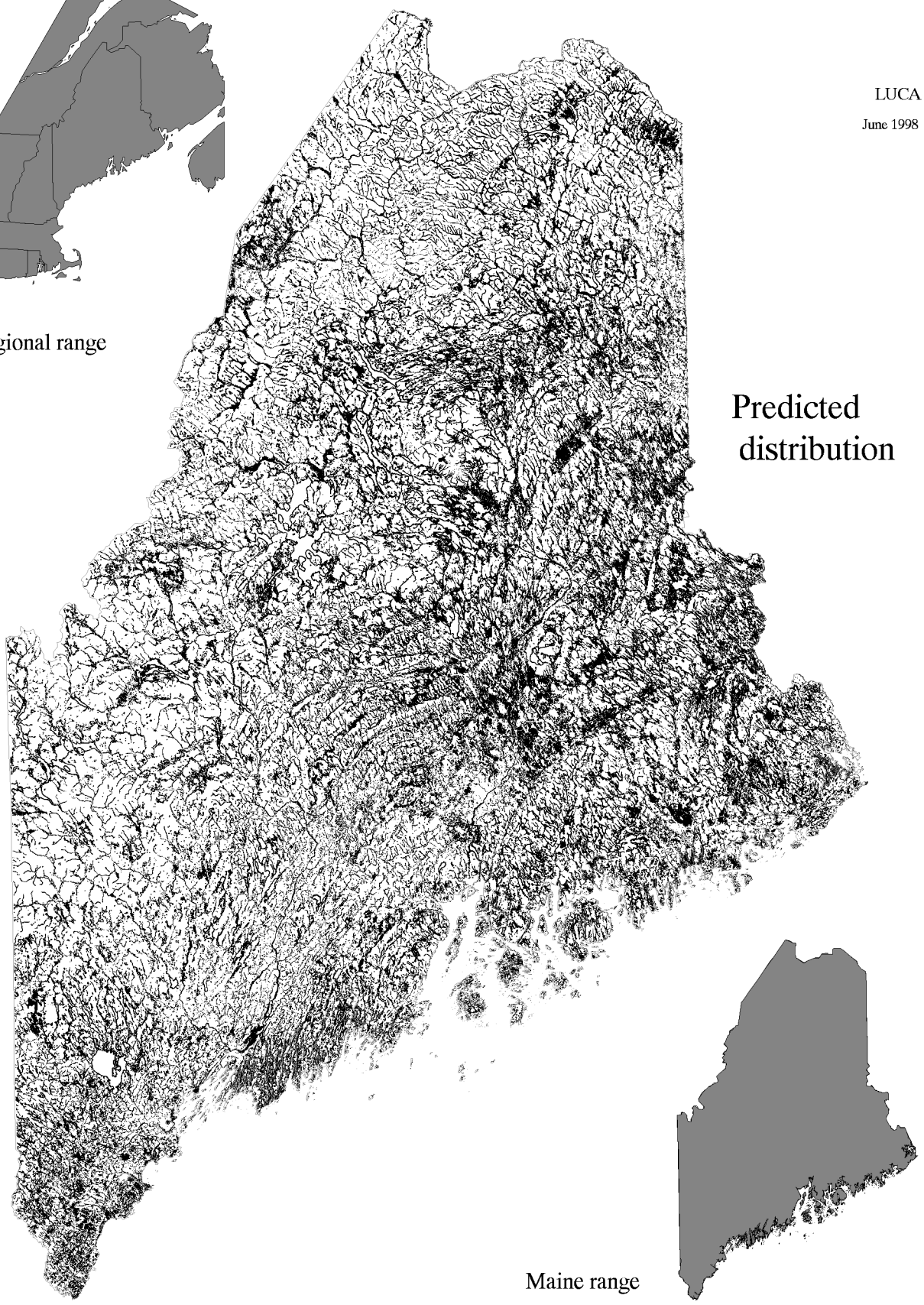
LUCA

June 1998



Regional range

Predicted distribution

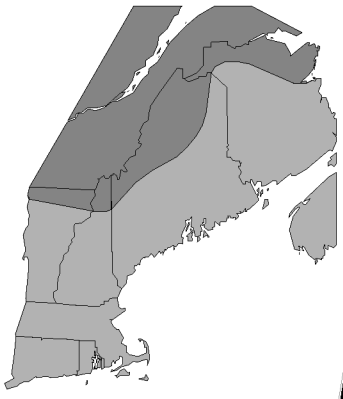


Maine range

Lynx

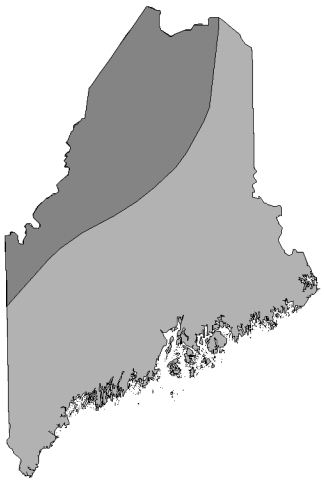
FELY

June 1998



Regional range

Predicted distribution

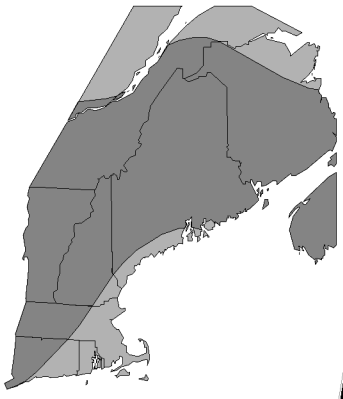


Maine range

Bobcat

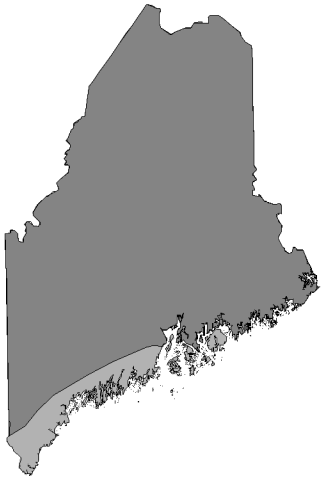
FERU

June 1998



Regional range

Predicted distribution

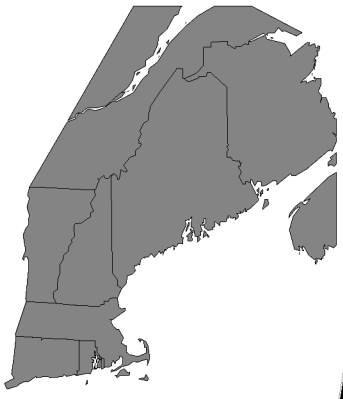


Maine range

White-tailed deer

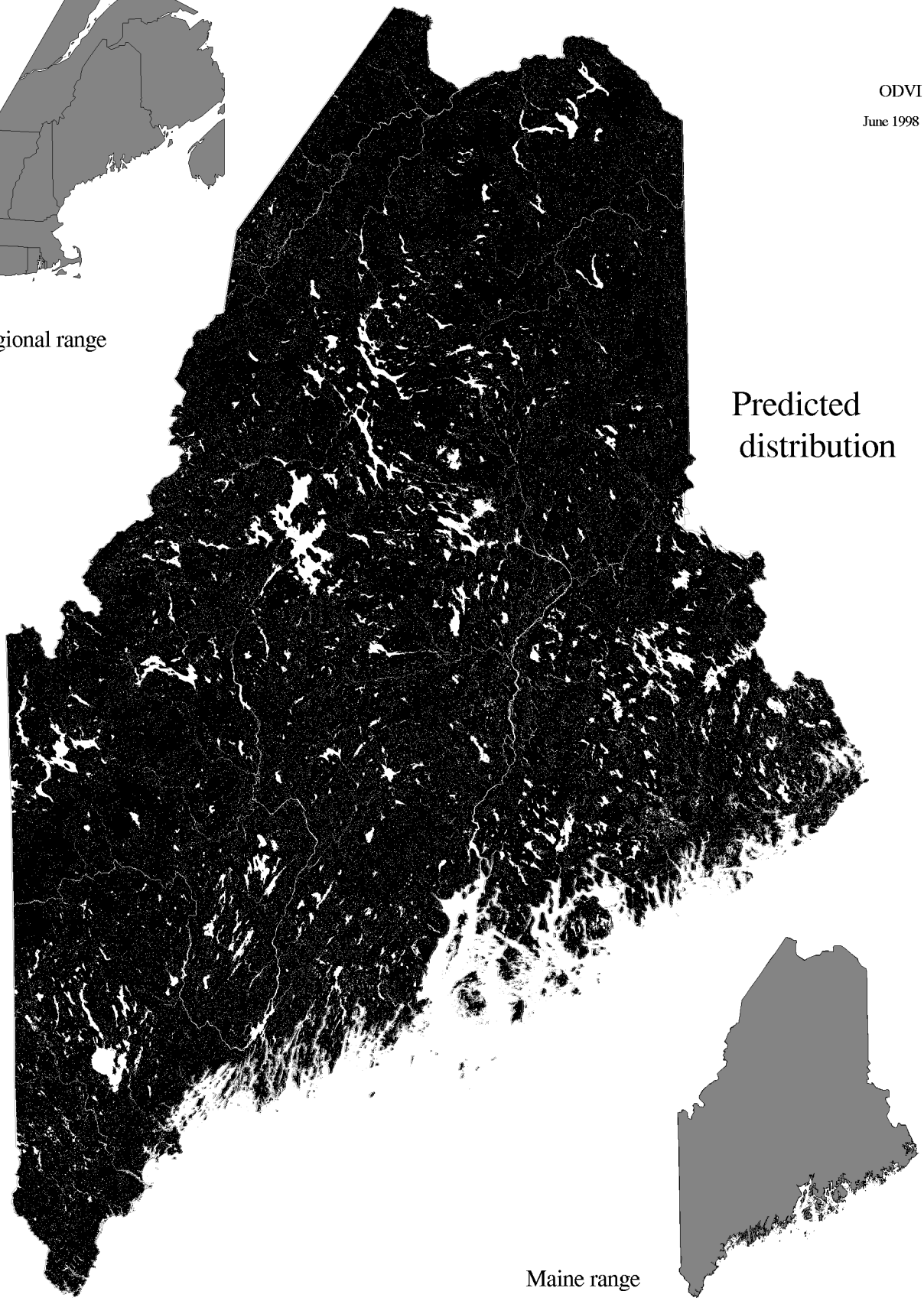
ODVI

June 1998



Regional range

Predicted distribution

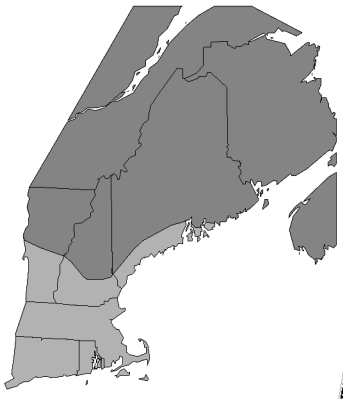


Maine range

Moose

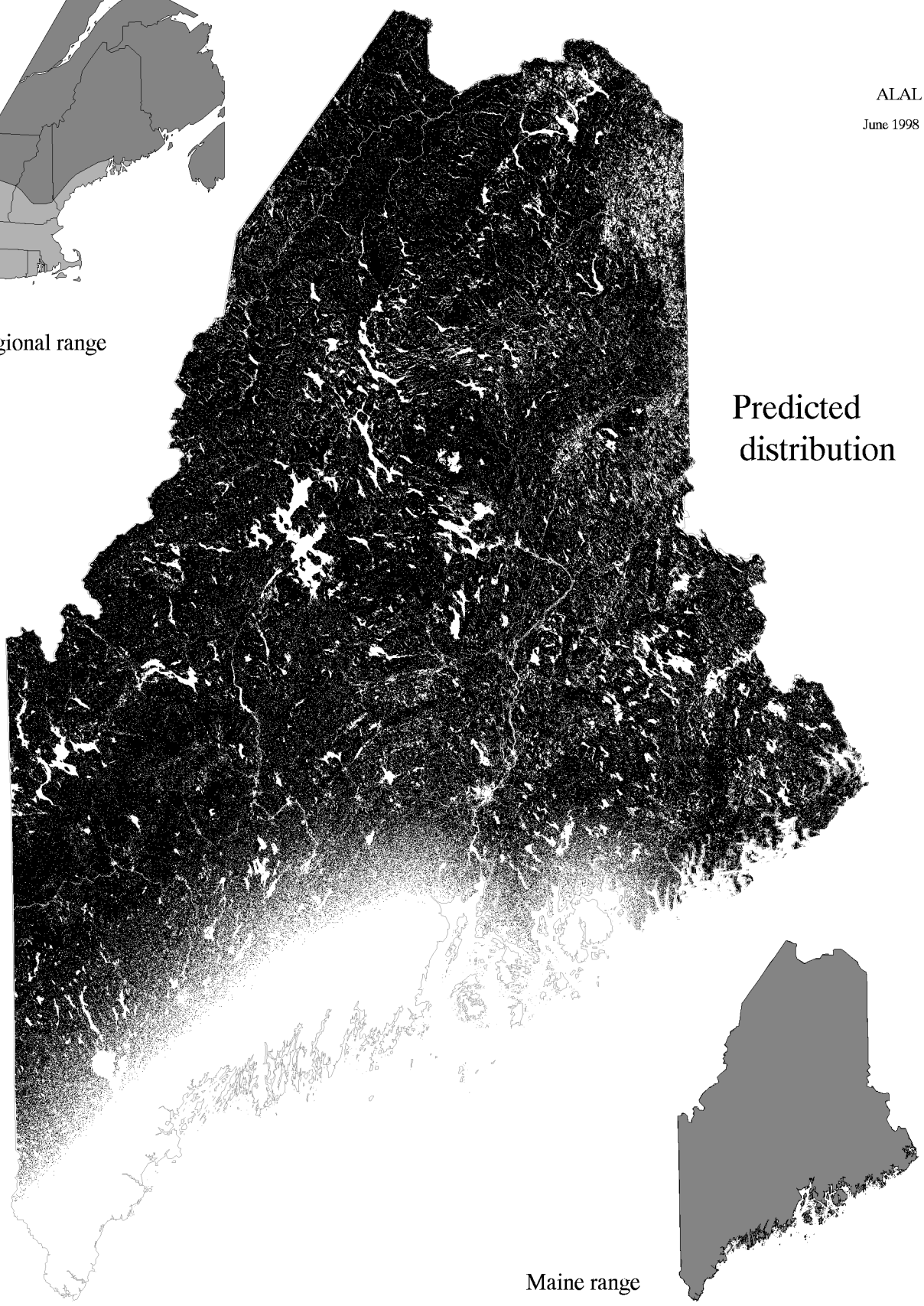
ALAL

June 1998



Regional range

Predicted distribution



Maine range