CHAPTER THREE

SPECIES OF GREATEST CONSERVATION NEED

Wildlife Species Considered by the ICWCP

Federal guidelines require the ICWCP to include information on the distribution and abundance of wildlife, including low and declining populations *as the IDNR deems appropriate.* The IDNR is the sole agency given the responsibility to manage Iowa's fish and wildlife resources and to protect their habitats (Code of Iowa, Chapter 455A). Iowa law defines *wildlife* as any species of wild mammal, fish, bird, reptile and amphibian (Code of Iowa sections 456.24, 481A.1, 481A.38, 481A.39, 481A.48). Authority to establish and protect state-listed endangered or threatened species is vested in Chapter 481B.4 and Iowa Administrative Code Chapter 571-77(481B). Butterflies, land snails and fresh water mussels were included in the Plan because these invertebrates are included on the state's endangered and threatened species list. Dragonflies and damselflies were later added when significant data were found that listed the distribution and status of species in these groups. A total of 999 species were considered by working groups (Table 3-1).

Table 3-1. Number of species considered by the ICWCP.

Taxonomic Class	Species	List location
Breeding birds	206	Appendix 3
Migrant birds [1]	199	Appendix 4
All birds	405	
Mammals	88	Appendix 5
Fish	153	Appendix 6
Reptiles and Amphibians	71	Appendix 7
Freshwater mussels	55	Appendix 8
Land snails	8	Table 3-8
Butterflies	113	Appendix 9
Dragonflies and Damselflies	106	Appendix 10
Total species considered	999	

[1] Migrant species that do not nest in Iowa

Determining the Species of Greatest Conservation Need

A variety of data resources were utilized by working groups as they selected the SGCN:

- Iowa GAP -completed in 2003 with ongoing updates provided by Iowa Nature Mapping;
- Published historic and scientific literature;
- Unpublished reports, scientific surveys and databases maintained by the IDNR fisheries, wildlife and water quality bureaus;
- Personal research and survey data supplied by wildlife ecologists at Iowa educational institutions;
- Museum and personal specimen collections;
- State and regional databases maintained by other conservation organizations (e.g. NatureServe, PIF, PARC, TNC, USFWS, IOU, Audubon IBA, etc.);
- Personal expertise of working group members and consultants.

The procedures used to identify SGCN varied somewhat between Working Groups, but all followed a similar process. Working Group members reviewed the available information on species abundance and distribution in their assigned taxonomic class. The potential list of SGCN in each taxonomic class was then circulated to other experts for review and comment. The Working Group reviewed comments and prepared a recommended list that was presented to the Steering Committee for approval. In some cases additional species were added to the lists based on comments received later in the planning process.

Game species. Information on the current abundance and distribution of wildlife is most complete for major game species. IDNR has collected harvest statistics and conducted population surveys on some of these species for over half a century. This information is documented for terrestrial game and selected nongame species in *Trends in Iowa Wildlife Populations and Harvest 2004* (Iowa DNR 2004). *Fishing in Iowa: A Survey of 1994 Iowa Anglers* (Iowa DNR 1995) Is the most recent survey of statewide fish harvest statistics. A compilation of population surveys is provided in Appendix 21 and summarized in Table 7-1.

Birds. The distribution and abundance of birds in Iowa is better understood than any other nongame taxa considered in the ICWCP. As a result the Bird Working Group had many sources of information to consult. The working group used the bird list of the IOU to create separate state and national status lists for all nesting or migrant species that are found in Iowa. Other Iowa and national status lists were created using the NatureServe website, the NABCI 2002 Bird Conservation Region and the USFWS Region 3 Birds of Conservation Concern lists. Once completed, these lists were compared, reviewed by the working group and collated into final lists of Iowa breeding and migrant birds that were accepted by the Steering Committee.

To determine the bird SGCN, a subcommittee of the Bird Working Group classified breeding and migrant birds into one of 3 categories:

1 - SGCN (State Endangered, Threatened, or Special Concern);
2 - Strong candidate for SGCN;
3- Questionable candidate for SGCN.

This list was provided to the entire Bird Working Group for review. Then a second draft of was created in which birds were listed in one of two categories:

1= SGCN (State Endangered, Threatened, and Special Concern);
2 = Proposed for SGCN by the Bird Working Group.

This second draft was reviewed by the entire working group and USFWS Region 3 biologists, resulting in a final list of 67 Iowa breeding birds (Table 3-2) and 18 migratory birds (Table 3-3) of greatest conservation need. Iowa has a responsibility to conserve these migrant species due to the state's geographical location on their migratory pathway, (e.g. rusty blackbird, greater and lesser yellowlegs), or because Iowa acts as important migration rest habitat (e.g. yellow rail).

There are several Iowa extirpated nesting bird species not included as birds of greatest conservation need e.g. swallow-tailed kite (*Elanoides forficatus*), merlin (*Falco columbarius*), and common loon (*Gavia immer*). Restoration programs for these species may be justified in the future, at which time their status will be reconsidered.

The Partners in Flight (PIF) Species Prioritization Scheme (1991) played a major role in determining which species ultimately made the bird list of SGCN. A number of the priority bird species lists used as references in this process were derived directly or indirectly from PIF. The PIF prioritizing system ranks each species of North American breeding bird based upon seven measures of conservation vulnerability:

1) Relative abundance (inter-specific);
2) Size of breeding range;
3) Size of non-breeding range;
4) Threats to the species in breeding areas;
5) Threats to the species in non-breeding areas;
6) Population trend;
7) Relative density (intra-specific) in a given planning unit compared to the maximum reached within its range.

Additional references utilized by the Bird Working Group include:

- NatureServe National and Sub-national Heritage Status Rankings;
- *Iowa Birds* (Dinsmore et. al.1984);
- *The Iowa Breeding Bird Atlas* (Jackson et. al. 1996);
- *Birds of Iowa* (Kent and Dinsmore 1996);
- USGS Breeding Bird Survey;
- Partners in Flight Bird Conservation Plans for Iowa Physiographic Areas;

- NABCI 2002 Bird Conservation Region
- USFWS Region 3 Birds of Conservation Concern;
- United States Shorebird Conservation Plan;
- Upper Mississippi-Great Lakes Shorebird Plan;
- Northern Plains/Prairie Potholes Regional Shorebird Plan;
- North American Waterbird Conservation Plan;
- The Prairie-Forest Border Ecoregion: A Conservation Plan (The Nature Conservancy);
- American Bird Conservancy Green List;
- Iowa Important Bird Area Priority Birds List (Audubon).

Mammals. The Mammal Working Group developed a complete list of mammals found in Iowa primarily based on Bowles *et al*.1998. The SGCN list for mammals was developed by eliminating vagrant and extirpated species, which had little possibility for management. The working group then eliminated all species that had a NatureServe S + N status score of 9 or above (*secure* or *apparently secure*) at the state and national levels (Appendix 11). The proposed SGCN list was sent to individuals outside of the working group for comment and was reviewed by the entire Steering Committee. The final list of SGCN is comprised of 18 species (Table 3-4).

Amphibians and reptiles. This working group developed a complete list of Iowa amphibians and reptiles based primarily the work of Christiansen and Bailey (1986, 1988, and 1991). Those species with a NatureServe S plus N status score of 9 or above (*secure or apparently secure)* were eliminated if they were not on Iowa's T & E list or did not have a NatureServe trend listing of declining or unknown. The final list of amphibians and reptiles of greatest conservation need contains 31 species (Table 3-5).

Land snails. Comparatively little is know about the distribution and status of this group in Iowa and there is no comprehensive list of land snails for the state. For this reason, the Land Snails Working Group decided to list only those species on the state's T & E list (Appendix 12). This list was based largely on comprehensive surveys of algific slopes in NE Iowa conducted by Dr. Terrence Frest in the 1980's. Eight species were listed as Iowa land snails of greatest conservation need (Table 3-6).

Butterflies. The Butterfly Working Group first developed a complete list of Iowa butterflies (Appendix 9). Knowledge of butterfly abundance and distribution is not as complete as for other taxonomic groups considered in the Plan, so only Iowa listed T & E species were included on the SGCN list for butterflies. Both lists were reviewed by the working group and by the full Steering Committee. The final list of Iowa butterflies of greatest conservation need contains 30 species (Table 3-7).

Table 3-2. Breeding birds of greatest conservation need.

Iowa Abundance: A = abundant, C = common, CL = common locally, U=uncommon, UL = uncommon locally, R = rare, SC = special concern, Th = threatened, En = endangered, X = extirpated. E = extinct.
Iowa Trend: D = decreasing, I = increasing, S = stable, K = unknown.
Iowa Status: B =breeding, N = non-breeding.
See Appendix 11for NatureServe codes used in Iowa Status and National Status columns.

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Status	National Status
American bittern	*Botaurus lentiginosus*	R	S	S2B	N4B, N4N
Least bittern	*Ixobrychus exilis*	U	S	S3B, S2N	N5B, N5N
Black-crowned night-heron	*Nycticorax nycticorax*	R	D	S3B, S3N	N5B, N5N
Yellow-crowned night-heron	*Nyctanassa violacea*	R	K	S3B, S3N	N5B, N5N
Trumpeter swan	*Cygnus buccinator*	R	I	S2B	N4B, N4N
Northern pintail	*Anas acuta*	R	S	S2B, S5N	N5B, N5N
Canvasback	*Aythya valisineria*	R	S	S2B, S4N	N5B, N5N
Redhead	*Aythya americana*	U	S	S2B, S4N	N5B, N5N
Osprey	*Pandion haliaetus*	R	I	SXC, S3N	N5B, N4N
Bald eagle	*Haliaeetus leucocephalus*	En	I	S3B, S3N	N4B, N4N
Northern harrier	*Circus cyaneus*	En	I	S2B, S4N	N5B, N5N
Red-shouldered hawk	*Buteo lineatus*	En	I	S2B	N5B, N5N
Broad-winged hawk	*Buteo platypterus*	R	S	S3B	N5B
Swainson's hawk	*Buteo swainsoni*	R	D	S3B, S3N	N5B
Peregrine falcon	*Falco peregrinus*	En	I	S1B	N4B, N4N
Ruffed grouse	*Bonasa umbellus*	U	D	S4B	N5
Greater prairie-chicken	*Tympanuchus cupido*	R	S	S1B	N4
Sharp-tailed Grouse	*Tympanuchus phasianellus*	R	K	S1B	N4
Northern bobwhite	*Colinus virginianus*	CL	D	S5B	N5
King rail	*Rallus elegans*	En	K	SAB, S1N	N4B, N4N
Common moorhen	*Gallinula chloropus*	R	K	S2B, S2N	N5B, N5N
Sandhill crane	*Grus canadensis*	R	I	S1B, S1N	N5B, N5N
Piping plover	*Charadrius melodus*	En	S	S1B	N3B, N3N
Upland sandpiper	*Bartramia longicauda*	U	S	S3B	N5B
American woodcock	*Scolopax minor*	C	K	S4B, S5N	N5B, N5N
Wilson's phalarope	*Phalaropus tricolor*	R	K	S3N	N5B
Forster's tern	*Sterna forsteri*	SC	K	S2B, S3N	N5B, N5N
Least tern	*Sterna antillarum*	En	S	S1B, S1N	N?
Black tern	*Chlidonias niger*	SC	D	S1B, S4N	N4B

Black-billed cuckoo	*Coccyzus erythropthalmus*	C	D	S3B	N5B
Common Name	**Scientific Name**	**Iowa Abundance**	**Iowa Trend**	**Iowa Status**	**National Status**
Yellow-billed cuckoo	*Coccyzus americanus*	C	D	S3B	N5B
Barn owl	*Tyto alba*	En	S	S1B	N5
Burrowing owl	*Speotyto cunicularia*	R	K	S1B	N4B, N4N
Long-eared owl	*Asio otus*	Th	K	S2B, S3N	N5B, N5N
Short-eared owl	*Asio flammeus*	En	S	S1B, S2N	N5B, N5N
Common nighthawk	*Chordeiles minor*	C	D	S5B	N5B
Whip-poor-will	*Caprimulgus vociferus*	CL	D	S5B	N5B
Red-headed woodpecker	*Melanerpes erythrocephalus*	C	D	S5B	N5B, N5N
Acadian flycatcher	*Empidonax virescens*	R	S	S3B, S3N	N5B
Willow flycatcher	*Empidonax traillii*	C	S	S4B, S4N	N5B
Least flycatcher	*Empidonax minimus*	R	K	S1B, S4N	N5B
Brown creeper	*Certhia americana*	R	S	S3B	N5
Bewick's wren	*Thryomanes bewickii*	R	K	S2B, S2N	N5B
Sedge wren	*Cistothorus platensis*	U	I	S4B, S4N	N4B, N5N
Veery	*Catharus fuscescens*	R	D	S2B,S3N	N5B
Wood thrush	*Hylocichla mustelina*	U	D	S4B, S4N	N5B
Northern mockingbird	*Mimus polyglottos*	R	K	S3B	N5
Loggerhead shrike	*Lanius ludovicianus*	U	D	S3B, S3N	N4
White-eyed vireo	*Vireo griseus*	R	K	S2B, S3N	N5B, N5N
Bell's vireo	*Vireo bellii*	U	S	S3B, S4N	N4B
Blue-winged warbler	*Vermivora pinus*	R-W/U-E	S	S3B, S4N	N5B
Cerulean warbler	*Dendroica cerulea*	R	D	S2B, S3N	N4B
Black-and-white warbler	*Mniotilta varia*	R	K	S5N	N5B, N4N
Prothonotary warbler	*Protonotaria citrea*	R	S	S3B, S3N	N5B
Worm-eating warbler	*Helmitheros vermivorus*	R	K	S2B, S2N	N5B
Louisiana waterthrush	*Seiurus motacilla*	R	K	S3B, S4N	N5B
Kentucky warbler	*Oporornis formosus*	R	K	S1B, S3N	N5B
Hooded warbler	*Wilsonia citrina*	R	K	S1B, S2N	N5B
Yellow-breasted chat	*Icteria virens*	R	S	S3B, S3N	N5B
Dickcissel	*Spiza americana*	A	D	S4B, S4N	N5B
Eastern towhee	*Pipilo erythrophthalmus*	CL	D	S4B, S4N	N5
Field sparrow	*Spizella pusilla*	C	D	S5B, S5N	N5
Lark sparrow	*Chondestes grammacus*	CL	K	S4B	N5B
Grasshopper sparrow	*Ammodramus savannarum*	C	D	S4B, S4N	N5B, N5N

Henslow's sparrow	*Ammodramus henslowii*	Th	I	S3B, S2N	N3B, N4N
Common Name	**Scientific Name**	**Iowa Abundance**	**Iowa Trend**	**Iowa Status**	**National Status**
Bobolink	*Dolichonyx oryzivorus*	C	D	S4B	N5B
Eastern meadowlark	*Sturnella magna*	C	D	S4B, S4N	N5

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Table 3-3. Migratory birds of greatest conservation need.

Iowa Abundance: R = rare, U = uncommon, C = common
See Appendix 11.for NatureServe codes used in Iowa Status and National Status columns.

Common Name	Scientific Name	Iowa Abundance	Iowa Status	National Status
American white pelican	*Pelecanus erythrorhynchos*	C	S4N	N3B, N3N
Yellow rail	*Coturnicops noveboracensis*	R	SNA	N3B, N4N
Whooping crane	*Grus americana*	R	SXB	N1N
American golden-plover	*Pluvialis dominica*	U	S5N	N5B, N5N
American avocet	*Recurvirostra americana*	R	S3N	N5B, N5N
Greater yellowlegs	*Tringa melanoleuca*	C	S5N	N5B, N5N
Lesser yellowlegs	*Tringa flavipes*	C	S5N	N5B, N5N
Solitary sandpiper	*Tringa solitaria*	C	S5N	N4B, N5N
Hudsonian godwit	*Limosa haemastica*	U	S3N	N3?B
Marbled godwit	*Limosa fedoa*	R	SXB	N5B, N5N
Stilt sandpiper	*Micropalama himantopus*	U	S4N	N3B, N4N
Buff-breasted sandpiper	*Tryngites subruficollis*	R	S3N	N4B
Short-billed dowitcher	*Limnodromus griseus*	U	S4N	N5B, N5N
Golden-winged warbler	*Vermivora chrysoptera*	U	S1N	N4B
Canada warbler	*Wilsonia canadensis*	U	S3N	N5B
Le Conte's sparrow	*Ammodramus leconteii*	U	SNA	N3B, N4N
Nelson's sharp-tailed sparrow	*Ammodramus nelsoni*	R	SNA	N3B, N5N
Rusty blackbird	*Euphagus carolinus*	U	S3N	N5B, N5N

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Table 3-4. Mammals of greatest conservation need.

Iowa Abundance: CL = common locally, U = uncommon, R = rare, I = re-introduced.
Iowa Trend: K = unknown, D = decreasing, S = stable, I = increasing.
See Appendix 11.for NatureServe codes used in Iowa Status and National Status columns

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Status	National Status
Hayden's shrew	*Sorex haydeni*	CL	K	S4-Apparently secure	N4
Short-tailed shrew	*Blarina hylophaga*	CL	K	S4	?
Least shrew	*Cryptotis parva*	R	K	S3 Threatened	N5
Evening bat	*Nycticeius humeralis*	CL	K	S3	N5
Indiana bat	*Myotis sodalis*	R	K	S1 Endangered	N2
Northern myotis	*Myotis septentrionalis*	CL	K	S4-Apparently secure	N4
White-tailed jackrabbit	*Lepus townsendii*	R	D	S3	N5
Franklin's ground squirrel	*Spermophilus franklinii*	R	D	S3	N5
Red squirrel	*Tamiasciurus hudsonicus*	CL	S	S3	N5
Southern Flying Squirrel	*Glaucomys volans*	U	K	S4 Special Concern	N5
Plains pocket mouse	*Perognathus flavescens*	R	K	S2	N5
Prairie vole	*Microtus ochrogaster*	U	S	S3	N5
Red-backed vole	*Clethrionomys gapperi*	R	D	S2 Endangered	N5
Southern bog lemming	*Synaptomys cooperi*	R	D	S3 Threatened	N5
Woodland vole	*Microtus pinetorum*	R	K	S3	N5
River otter	*Lutra canadensis*	I	I	S3	N5
Spotted skunk	*Spilogale putorius*	R	D	S1 Endangered	N5
Bobcat	*Lynx rufus*	U	I	S3	N5

Table 3-5. Reptiles and amphibians of greatest conservation need.

Iowa Listing: T = Threatened, E = Endangered
Iowa Trend: K = unknown, D = decreasing, S = stable.
See Appendix 11.for NatureServe codes used in Iowa Status and National Status columns

Common Name	Scientific Name	Iowa Listing	Iowa Trend	Iowa Status	National Status
Mudpuppy	*Necturus maculosus*	T	D	S2	N5
Central Newt	*Notophthalmus viridescens*	T	S	S2	N5
Smallmouth Salamander	*Ambystoma texanum*		S	S3	N5
Blue-spotted Salamander	*Ambystoma laterale*	E	S	S1	N5
Crawfish Frog	*Rana areolata*	E	D	S1	N4
Cricket Frog	*Acris crepitans*		D	S3	N5
Great Plains Toad	*Bufo cognatus*		D	S3	N5
Ornate Box Turtle	*Terrapene ornata*	T	S	S2	N5
Blanding' Turtle	*Emydoidea blandingii*	T	D	S2	N4
Wood Turtle	*Clemmys insculpta*	E	K	S1	N4
Alligator Snapping Turtle	*Macroclemys temmincki*		K	SU	N3, N4
Yellow Mud Turtle	*Kinosternon flavescens*	E	D	S1	N5
Common Musk Turtle	*Sternotherus odoratus*	T	D	S2	N5
Slender Glass Lizard	*Ophisaurus attenuatus*	T	D	S2	N5
Six-Lined Racerunner	*Cnemidophorus sexlineatus*		D	S3	N5
Northern Prairie Skink	*Eumeces septentrionalis*		D	S3	N5
Great Plains Skink	*Eumeces obsoletus*	E	D	S1	N5
Diamondback Water Snake	*Nerodia rhombifera*	T	D	S2	N5
Yellowbelly Water Snake	*Nerodia erythrogaster flavigaster*		D	S1	N5
Copperbelly Water Snake	*Nerodia erythrogaster neglecta*	E	D	S1	N5
Smooth Earth Snake	*Virginia valeriae*		S	S3	N5
Western Worm Snake	*Carphophis amoenus*	T	D	S2	N5
Smooth Green Snake	*Opheodrys vernalis*	Special Concern	S	S3	N5
Prairie Kingsnake	*Lampropeltis calligaster*		D	S3	N5
Speckled Kingsnake	*Lampropeltis getulus*	T	D	S1	N5
Bullsnake	*Pituophis catenifer sayi*	Special Concern	D	S3	N5
Western Hognose Snake	*Heterodon nasicus*	E	K	S1	N5
Eastern Massasauga Rattlesnake	*Sistrurus catenatus catenatus*	E (Fed. Candidate Sp.)	D	S1	N3, N4
Timber Rattlesnake	*Crotalus horridus*		D	S3	N5

Prairie Rattlesnake	*Crotalus viridis*	E	K	S1	N5
Copperhead	*Agkistrodon contortix*	E	D	S1	N5

Table 3-6. Land snails of greatest conservation need.

Iowa and Federal Listing: T = T, E = E.
Iowa Abundance: R = Rare
Iowa Trend: K = unknown, S = stable, D = decreasing.
See Appendix 11.for NatureServe codes used in Iowa Status and National Status columns

Common Name	Scientific Name	Iowa Listing	Federal Listing	Iowa Abundance	Iowa Trend	National Status
Iowa Pleistocene Snail	*Discus macclintocki*	E	E	R	S	N1
Frigid Ambersnail	*Catinella gelida*	E		R	D	N1
Minnesota Pleistocene Succinea	*Novasuccinea n. Sp. Minnesota a*	E		R	D	NNR
Iowa Pleistocene Succinea	*Novasuccinea n. Sp. Minnesota b*	E		R	D	NNR
Briarton Pleistocene Snail	*Vertigo brierensis*	E		R	K	N1
Hubricht's Vertigo	*Vertigo hubrichti*	T		R	K	N3
Iowa Pleistocene Vertigo	*Vertigo iowaensis*	E		R	K	N3
Bluff Vertigo	*Vertigo occulta*	T		R	K	N2

Table 3-7. Butterflies of greatest conservation need.

Iowa Listing and Abundance: K = unknown, R = rare, C = common, LC = locally common.
Iowa Abundance: K = unknown, S = stable, D = decreasing.
See Appendix 11.for NatureServe codes used in Iowa Status and National Status columns

Common Name	Scientific Name	Iowa Listing	Iowa Abundance	Iowa Trend	Iowa Status	National Status
Pepper and Salt Skipper	*Amblyscirtes hegon*	SC	K	K	S?	N5
Arogos Skipper	*Atrytone arogos*	SC	R	D	S2	N3
Dusted Skipper	*Atrytonopsis hianna*	SC	R	D	S3	N4
Pipevine Swallowtail	*Battus philenor*	SC	K	K	S?	N5
Swamp Metalmark	*Calephelis muticum*	SC	R	K	S?	N3
Common Ringlet	*Coenoympha tullia*	E	R	D	S1	N5
Wild Indigo duskywing	*Erynnis baptisiae*	SC	K	K	S3	N5
Sleepy Duskywing	*Erynnis brizo*	SC	R	K	S3	N5
Dreamy Duskywing	*Erynnis icelus*	SC	R	K	S3	N5
Columbine Duskywing	*Erynnis lucilius*	SC	R	K	S3	N4
Olympia White	*Euchloe olympia*	SC	K	K	S3	N4
Baltimore Checkerspot	*Euphydryas phaeton*	T	R	K	S2	N4
Two-spotted Skipper	*Euphyes bimacula*	SC	R	K	S2	N4
Sedge Skipper	*Euphyes dion*	SC	K	K	S3	N4
Zebra Swallowtail	*Eurytides marcellus*	SC	R	K	S?	N5
Silvery Blue	*Glaucopsyche lygdamus*	T	R	K	S2	N5
Dakota Skipper	*Hesperia dacotae*	E	R	D	S1	N2
Leonardus Skipper	*Hesperia leonardus*	SC	R	D	S2	N4
Ottoe Skipper	*Hesperia ottoe*	SC	R	D	S2	N3
Purplish Copper	*Lycaena helloides*	SC	R	K	S?	N5
Powesheik Skipperling	*Oarisma powesheik*	T	R	D	S2	N2
Mulberry Wing	*Poanes massasoit*	T	R	D	S2	N4

Common Name	Scientific Name	Iowa Listing	Iowa Abundance	Iowa Trend	Iowa Status	National Status
Broad-winged Skipper	*Poanes viator*	SC	LC	K	S3	N5
Zabulon Skipper	*Poanes zabulon*	SC	LC	K	S3	N5
Byssus Skipper	*Problema byssus*	T	R	D	S2	N3
Acadian Hairstreak	*Satyrium acadica*	SC	LC	S	S3	N5
Hickory Hairstreak	*Satyrium caryaevorum*	SC	R	K	S3	N4
Edward's Hairstreak	*Satyrium edwardsii*	SC	K	K	S3	N5
Striped Hairstreak	*Satyrium liparops*	SC	K	K	S?	N5
Regal Fritillary	*Speyeria idalia*	SC	K	K	S2	N3

Fish. The Fish Working Group first developed a complete list of 153 species of fish found in Iowa and the border rivers based primarily on Harlan and Speaker (1987). Species were placed on a list of greatest conservation need if they were Federal or state listed T and E species; species with recent, rapid and or widespread decrease in abundance or distribution; or species that are targets of regional or national conservation projects. Species with an S plus N NatureServe status score of 8 or greater (*secure* or *apparently secure*) were also eliminated. This list was further refined through comments from IDNR fisheries supervisors and biologists. The complete list was ultimately reduced to 68 fish species of greatest conservation need (Table 3-8).

Freshwater mussels. The complete list of Iowa freshwater mussels (Appendix 6) was based primarily on Arbuckle and Downing (2000) and Heidebrink (2002). Since most Iowa mussel species are decreasing in abundance, additional information on regional abundance, trend, and listing was used to determine species of greatest conservation need. A list of SGCN was developed by eliminating species with an S plus N NatureServe status score of 9 or greater and species that are considered extirpated from this state (unless the species was on the T & E list). This list was reviewed by the working group and the Steering Committee. The final list of mussels of greatest conservation need contains 29 species (Table 3-9).

Table 3-8. Fish of greatest conservation need.

Iowa Abundance: A = abundant, C = common, U = uncommon, R = rare, K = unknown, X = possibly extirpated.
Iowa Trend: K = unknown, I = increasing, D = decreasing, S = stable.
See Appendix 11.for NatureServe codes used in Iowa Status and National Status columns

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Status	National Status
Chestnut lamprey	*Ichthyomyzon castaneus*	R	K	S2	N4
Northern brook lamprey	*Ichthyomyzon fossor*	R	K	S3	N4
Silver lamprey	*Ichthyomyzon unicuspis*	U	K	S3	N5
American brook lamprey	*Lampetra appendix*	C	K	S3	N4
Lake sturgeon	*Acipenser fulvescens*	R	K	S1	N3N4
Pallid sturgeon	*Scaphirhynchus albus*	R	D	S1	N1
Shovelnose sturgeon	*Scaphirhynchus platorynchus*	C	S	S4	N4
Paddlefish	*Polyodon spathula*	C	S	S3	N4
Bowfin	*Amia calva*	C	S	S3	N5
Longnose gar	*Lepisosteus osseus*	C	S	S3	N5
Spotted gar	*Lepisosteus oculatus*	K	K	S3	N5
American eel	*Anguilla rostrata*	R	D	S2	N5
Skipjack herring	*Alosa chrysochloris*	U	K	S3	N5
Goldeye	*Hiodon alosoides*	U	K	S3	N5
Brook Trout	*Salvelinus fontinalis*	U	S	S3	N5
Grass pickerel	*Esox americanus*	U	S	S3	N5
Central mudminnow	*Umbra limi*	U	K	S3	N5
Largescale stoneroller	*Campostoma oligolepis*	U	K	S3	N5
Western silvery minnow	*Hybognathus argyritis*	K	K	S1	N4
Mississippi silvery minnow	*Hybognathus nuchalis*	U	K	S3	N5
Plains minnow	*Hybognathus placitus*	C	S	S4	N4
Speckled chub	*Macrhybopsis aestivalis*	C	S	S3	N5
Sturgeon chub	*Macrhybopsis gelida*	R	K	SH	N3
Flathead chub	*Platygobio gracilis*	C	D	S3	N5
Sicklefin chub	*Macrhybopsis meeki*	R	K	S1?	N3
Gravel chub	*Erimytax x-punctatus*	U	K	S3	N4
Pallid shiner	*Hybopsis amnis*	R	D	S2	N4
Pugnose minnow	*Opsopoeodus emiliae*	U	K	S3	N5
Pugnose shiner	*Notropis anogenus*	R	K	S1	N3
Ghost shiner	*Notropis buchanani*	R	D	S2	N5
Blacknose shiner	*Notropis heterolepis*	R	K	S2	N4
Spottail shiner	*Notropis hudsonius*	C	S	S?	N5
Ozark minnow	*Notropis nubilus*	U	K	S3	N5
Weed shiner	*Notropis texanus*	R	D	S2	N5
Topeka shiner	*Notropis topeka*	R	D	S3	N3
Redfin shiner	*Lythrurus umbratilis*	U	D	S2	N5
Longnose dace	*Rhinichthys cataractae*	C	K	S3	N5

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Status	National Status
Pearl dace	*Margariscus margarita*	X		S1	N5
Southern redbelly dace	*Phoxinus erythrogaster*	C	D	S4	N5
Blue sucker	*Cycleptus elongatus*	C	D	S3	N3
Black buffalo	*Ictiobus niger*	U	K	S3	N5
Black redhorse	*Moxostoma duquesnei*	U	K	S3	N5
River redhorse	*Moxostoma carinatum*	R	K	S1	N4
Greater redhorse	*Moxostoma valenciennesi*	X	K	SX	N4
Spotted sucker	*Minytrema melanops*	C	K	S3	N5
Blue catfish	*Ictalurus furcatus*	U	S/D	S3	N5
Brown bullhead	*Ameiurus nebulosus*	R	D	S2	N5
Slender madtom	*Noturus exilis*	U	S	S3	N5
Tadpole madtom	*Noturus gyrinus*	U	D	S3	N5
Freckled madtom	*Noturus nocturnus*	R	K	S2	N5
Pirate perch	*Aphredoderus sayanus*	R	D	S3	N5
Trout perch	*Percopsis omiscomaycus*	U	D	S3	N5
Burbot	*Lota lota*	U	D	S3	N5
Banded killifish	*Fundulus diaphanus*	U	D	S2	N5
Blackstripe topminnow	*Fundulus notatus*	U	D	S3	N5
Mottled sculpin	*Cottus bairdi*	R	K	S2	N5
Slimy sculpin	*Cottus cognatus*	U	K	S3	N5
Slenderhead darter	*Percina phoxocephala*	U	K	S3	N5
Blackside darter	*Percina maculata*	C	D	S3	N5
River darter	*Percina shumardi*	C	S	S3	N5
Northern logperch	*Percina caprodes*	C	S	S3	N5
Crystal darter	*Crystallaria asprella*	R	K	S1	N3
Western sand darter	*Ammocrypta clara*	U	S	S2	N3
Banded darter	*Etheostoma zonale*	U	K	S3	N5
Bluntnose darter	*Etheostoma chlorosomum*	R	K	S1	N5
Mud darter	*Etheostoma asprigene*	U	S	S3	N4N5
Orangethroat darter	*Etheostoma spectabile*	U	K	S2	N5
Least darter	*Etheostoma microperca*	R	K	S1	N5

Table 3-9. Mussels of greatest conservation need.

Iowa Abundance: A = abundant, C = common, U = uncommon, R = rare, K = unknown, X = possibly extirpated.
Iowa Trend: K = unknown, I = increasing, S = stable, D = decreasing.
Iowa Listing: N = not listed, S = special concern, T = T, E = E, X = extirpated.
See Appendix 11.for NatureServe codes used in Iowa Status and National Status columns

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Listing	State Status	National Status
Elktoe	*Alasmidonta marginata*	U	D	N	S3	N4
Slippershell	*Alasmidonta viridis*	R	D	E	S1	N4
Flat floater	*Anodonta suborbiculata*	R	D	N	S1	N5
Cylinder	*Anodontoides ferussacianus*	R	D	T	S2	N5
Rock pocketbook	*Arcidens confragosus*	U	D	N	S3	N4
Spectacle case	*Cumberlandia monodonta*	R	D	E	S1	N2N3
Purple pimpleback	*Cyclonaias tuberculata*	R/X?	D	T	S1	N5
Butterfly	*Ellipsaria lineolata*	U	K	T	S2S3	N4
Spike	*Elliptio dilatata*	U	D	N	S2	N5
Ebonyshell	*Fusconaia ebena*	R	D	X	S1	N4N5
Ozark pigtoe	*Fusconaia ozarkensis*	E	X		SX	N3
Higgins' eye pearlymussel	*Lampsilis higginsi*	R	D	E	S1	N1
Yellow sandshell	*Lampsilis teres anodontoides*	R	D	E	S1	N5
Slough sandshell	*Lampsilis teres teres*	R	D	E	S1	N5
Creek heelsplitter	*Lasmigona compressa*	R	D	T	S1	N5
Fluted shell	*Lasmigona costata*	R	D	N	S2	N5
Pondmussel	*Ligumia subrostrata*	X	NA	X	SX?	N4N5
Hickorynut	*Obovaria olivaria*	U	D	N	S3	N4
Bullhead (Sheepnose)	*Plethobasus cyphus*	R	D	E	S1	N3
Round pigtoe	*Pleurobema sintoxia*	R	D	E	S2	N4
Monkeyface	*Quadrula metanerva*	U	D	N	S3	N4
Wartyback	*Quadrula nodulata*	U	D	N	S3	N4
Strange floater (Squawfoot)	*Strophitus undulatus*	R	D	T	S2	N5
Lilliput	*Toxolasma parvus*	R	D	N	S2	N5
Pistolgrip	*Tritogonia verrucosa*	R	D	E	S1	N4
Fawnsfoot	*Truncilla donaciformis*	R	D	N	S2	N5

Pondhorn	*Uniomerus tetralasmus*	R	K	N	S1	N4
Common Name	**Scientific Name**	**Iowa Abundance**	**Iowa Trend**	**Iowa Listing**	**State Status**	**National Status**
Paper pondshell	*Utterbackia imbecillis*	R	D	N	S2	N5
Ellipse	*Venustaconcha ellipsiformis*	R	D	T	S1	N3/4

Dragonflies and damselflies. The Dragonfly and Damselfly Working Group listed 106 species that occur in Iowa (Appendix 8) based primarily on Cruden and Gode (2000) with updates by working group member Ann Johnson. The full list consists of 103 species reported by Cruden and Gode (2000) as having been collected in Iowa since 1985, plus two accidentals and one new species that has been recently described from northeast Iowa. The list does not include 15 species listed by NatureServe as occurring in Iowa for which Cruden and Gode (2000) have not confirmed recent specimens.

The list of SGCN (Table 3-10) consists of 28 species with a state NatureServe status of S1 or S2. Eight species listed as S1 are known to have range distributions in Iowa that are not continuous with the species range in neighboring states. This may indicate that the overall range of the species is contracting. The complete list of Iowa dragonflies and damselflies and the list of species of greatest conservation need were both reviewed by the full Steering Committee.

Table 3-10. Dragonflies and damselflies of greatest conservation need.

Iowa Abundance: R = rare, ER = extremely rare.
See Appendix 11.for NatureServe codes used in Iowa Status and National Status columns

Common Name	Scientific Name	Iowa Abundance	Iowa Status	National Status
Rapids Clubtail	*Gomphus quadricolor*	ER	S1	N3N4
Spangled Skimmer	*Libellula cyanea*	ER	S1	N5
Slaty Skimmer	*Libellula incesta*	ER	S1	N5
Stygian Shadowdragon	*Neurocordulia yamaskanensis*	ER	S1	N5
Rusty Snaketail	*Ophiogomphus rupinsulensis*	ER	S1	N5
Sand Snaketail	*Ophiogomphus sp.*	ER	S1	not recorded
Mocha Emerald	*Somatochlora linearis*	ER	S1	N5
Brimstone Clubtail	*Stylurus intricatus*	ER	S1	N4
Blue-faced Meadowhawk	*Sympetrum ambiguum*	ER	S1	N5
Carolina Saddlebags	*Tramea carolina*	ER	S1	N5
Emma's Dancer	*Argia emma*	ER	S1	N5
Alkali Bluet	*Enallagma clausum*	ER	S1	N5
Elegant Spreadwing	*Lestes inaequalis*	ER	S1	N5
Sulphur-tipped Clubtail	*Gomphus militaris*	ER	S1S2	N5
Canada Darner	*Aeshna canadensis*	R	S2	N5
Variable Darner	*Aeshna interrupta*	R	S2	N5
Blue-eyed Darner	*Aeshna multicolor*	R	S2	N5
Green-striped Darner	*Aeshna verticalis*	R	S2	N5
Four-spotted Skimmer	*Libellula quadrimaculata*	R	S2	N5
Royal River Cruiser	*Macromia taeniolata*	R	S2	N5
Cyrano Darner	*Nasiaeschno pentacantha*	ER	S2	N5
Smoky Shadowdragon	*Neurocordulia molesta*	R	S2	N4
Paiute Dancer	*Argia alberta*	R	S2	N4
Prairie Bluet	*Coenagrion angulatum*	R	S2	N3?
Boreal Bluet	*Enallagma boreale*	R	S2	N5
Vesper Bluet	*Enallagma vesperum*	R	S2	N5
Spotted Spreadwing	*Lestes congener*	R	S2	N5
Sweetflag Spreadwing	*Lestes forcipatus*	R	S2	N5

SGCN in each Taxonomic Class

Table 3-11 compares the total number of species considered in each taxonomic class with the number of SGCN in each class. Birds and fish had the greatest number of species on the list, but each taxonomic class had some representatives. The classes with the highest percentage of species listed are those utilizing aquatic or semi-aquatic habitats – fish, mussels and dragonflies and damselflies.

Nearly all SGCN are nongame wildlife whose status is imperiled by lack or degradation of habitat. A few game animals with declining habitats or with declining trends nationally are listed e, g, ruffed grouse, woodcock, white-tailed jackrabbit, and bobwhite quail.

Nearly one third of all the wildlife considered by this Plan are considered to be in need of conservation to protect them from declining further into Threatened or Endangered status.

Table 3-11. Percent of Iowa species in each taxonomic class listed as a SGCN.

Group	Total Iowa Species Considered	Number with Greatest Need	Percent of Group Total
Fish	153	68	44
Breeding Birds	206	67	33
Butterflies	119	30	25
Mussels	55	29	53
Migratory Birds	199	18	9
Mammals	82	18	22
Land Snails [1]	8	8	100
Amphibians and Reptiles	71	31	44
Dragonflies and Damselflies	106	28	26
TOTALS	**999**	**297**	**30**

[1] Only Iowa T and E species are listed.

CHAPTER FOUR: HABITATS OF SGCN

Terrestrial Habitat Classes

The Steering Committee selected nine terrestrial vegetation classes defined by Iowa GAP as the basis for evaluating terrestrial wildlife habitats. Vegetation classes were identified from 1990 satellite imagery, entered into Iowa GAP's GIS database and were mapped. The nine habitat classes with their related alliances and the dominant vegetation found in each alliance are listed in Appendix 13. A descriptive summary of the terrestrial habitat classes is listed in Table 4-1. The distribution of terrestrial habitats is shown in Map 4-1 through Map 4-9.

Table 4-1. Description of Terrestrial Habitat Classes Used in the ICWCP.

HABITAT CATEGORY	DESCRIPTION
WOODED HABITATS	
Forest	>60% canopy of tree species with crowns interlocking
Wet - Forest/Woodland	Temporarily or seasonally flooded forest or woodland
Woodland	Open stands of tree species with 25-60% canopy cover
Shrubland	Shrubs >0.5 m tall forming >25% cover with <25% tree cover
WETLAND HABITATS	
Wet Shrubland	Temporarily, seasonally, and semi-permanently flooded wetlands or saturated deciduous shrubland
Herbaceous Wetlands	Temporarily, seasonally, semi-permanently, permanently flooded or saturated herbaceous wetlands
GRASS0LAND HABITATS	
Warm Season Herbaceous Vegetation	<25% canopy cover made up of trees or shrub species. Herbs form at least 25% of canopy cover
Savanna	Temperate grassland with sparse coniferous or cold-deciduous tree layer
AGRICULTURAL LANDS	Lands normally worked to produce a crop or grazed by livestock
Cool Season Grassland	Cool season grassland (smooth brome, forage crops, and pasture)
Cropland	Worked land normally on an annual basis in corn, soybeans, sorghum, fallow fields or other crops.

In another analysis, the IDNR used 2002 satellite imagery to identify 16 land cover categories that provide updated land cover estimates (presented in Table 4-2). The land cover types developed in this analysis do not coincide with the Iowa GAP vegetation classes, but several are intuitively similar or are clearly sub-classes. The acreages of land cover types in Table 4-2 are thought to be more reliable than those developed by Iowa GAP and are used in the ICWCP unless otherwise noted.

Table 4-2. GIS Land Cover Types From 2002 Satellite Imagery .

Land Cover Type	Acres	Percent of Iowa
Agricultural		
Corn	11,592,000	32.2%
Soybeans	9,612,000	26.7%
Other Row crops	144,000	0.4%
Hay	1,152,000	3.2%
Pasture	2,664,000	7.4%
Conservation Reserve	1,584,000	4.4%
All Agricultural	**26,748,000**	**74.3%**
Forest		
Deciduous forest	2,700,000	7.5%
Coniferous forest	72,000	0.2%
Wetland forest	72,000	0.2%
All Forest	**2,844,000**	**7.9%**
Developed		
Roads	516,000	1.6%
Residential	324,000	0.9%
Commercial	216,000	0.6%
Other	36,000	0.1%
All Developed	**1,092,000**	**3.2%**
Ungrazed Grassland	4,932,000	13.7%
Wetlands	180,000	0.5%
Surface water	324,000	0.9%

Seventy-four percent of Iowa was considered farmland in 2002 (Table 4--2). Nearly sixty percent is in row crop, primarily corn and soybeans, with the remainder of the farmland in hay, pasture, and CRP fields. Developed lands and ungrazed grasslands are the other non-native land use categories. Ungrazed grasslands could not be specifically categorized, but probably are a combination of temporarily idle pastures, odd field corners, wet areas along streams, and road ditches.

Distribution of wildlife habitats. Wildlife habitats are not uniformly distributed throughout the state (Table 4-3). Agriculture clearly dominates all landforms. The largest proportion of all wildlife habitats is found in the Southern Iowa Drift Plain, the least in the NW Iowa Plain and in the Missouri and Mississippi Alluvial Plains. The Southern Iowa Drift Plain contains more of each major habitat category - wooded, grassland and wetland habitat - than would be expected if habitats were distributed proportional to the areas of the landforms. The Paleozoic Plateau has more woodland and wetland than would be expected and the Loess

Hills more grassland, but the other landforms generally have fewer acres in wildlife habitat than expected based solely on their area.

Table 4-3. The Amount of Iowa's Wildlife Habitat Found in Each Landform

			Percent of each habitat class in each landform				
Landform [1]	Acres	% of State	Wooded	Grass land	Wetland	All Habitat	Ag Land
S Iowa Drift Plain	15,726,045	44%	57%	61%	51%	57%	41%
Iowan Surface	5,981,595	17%	10%	12%	16%	12%	18%
Des Moines Lobe	7,586,367	21%	9%	11%	13%	11%	23%
Paleozoic Plateau	1,632,298	5%	14%	4%	12%	10%	3%
Loess Hills	867,035	2%	3%	5%	2%	3%	2%
NW Iowa Plains	2,967,431	8%	2%	3%	4%	3%	9%
Mississippi Alluvial Plain	524,465	1%	3%	1%	1%	2%	1%
Missouri Alluvial Plain	717,025	2%	2%	2%	2%	2%	2%
Statewide	36,002,261	100%	100%	100%	100%	100%	100%

[1] Refer to map 2-1 for the description of landforms.

The Paleozoic Plateau has the greatest concentration of wildlife habitat within its boundaries (more than a third of its acreage), mostly in woodlands (Table 4-4). The three landforms in northcentral and northwest Iowa are among the most intensively farmed regions in the world and have relatively little wildlife habitat. In these landforms only the major river systems, restored and natural lakes and restored wetland/grassland complexes on publicly owned land provide substantial amounts of habitat (Map 2-2).

Table 4-4. Landcover Within Each Landform

	Percent of Landform Region						
Landform [1]	Wooded	Grass land	Wetland	All Habitat	Ag Land	Developed	All Land
Paleozoic Plateau	25%	4%	7%	36%	61%	4%	100.0%
Mississippi Alluvial Plain	16%	5%	2%	22%	66%	12%	100.0%
Loess Hills	9%	11%	3%	22%	75%	3%	100.0%
S Iowa Drift Plain	11%	7%	3%	21%	76%	3%	100.0%
Missouri Alluvial Plain	9%	4%	3%	16%	79%	5%	100.0%
Iowan Surface	5%	4%	3%	12%	86%	2%	100.0%
Des Moines Lobe	4%	3%	2%	8%	89%	3%	100.0%
NW Iowa Plains	2%	2%	1%	5%	93%	2%	100.0%
Total							

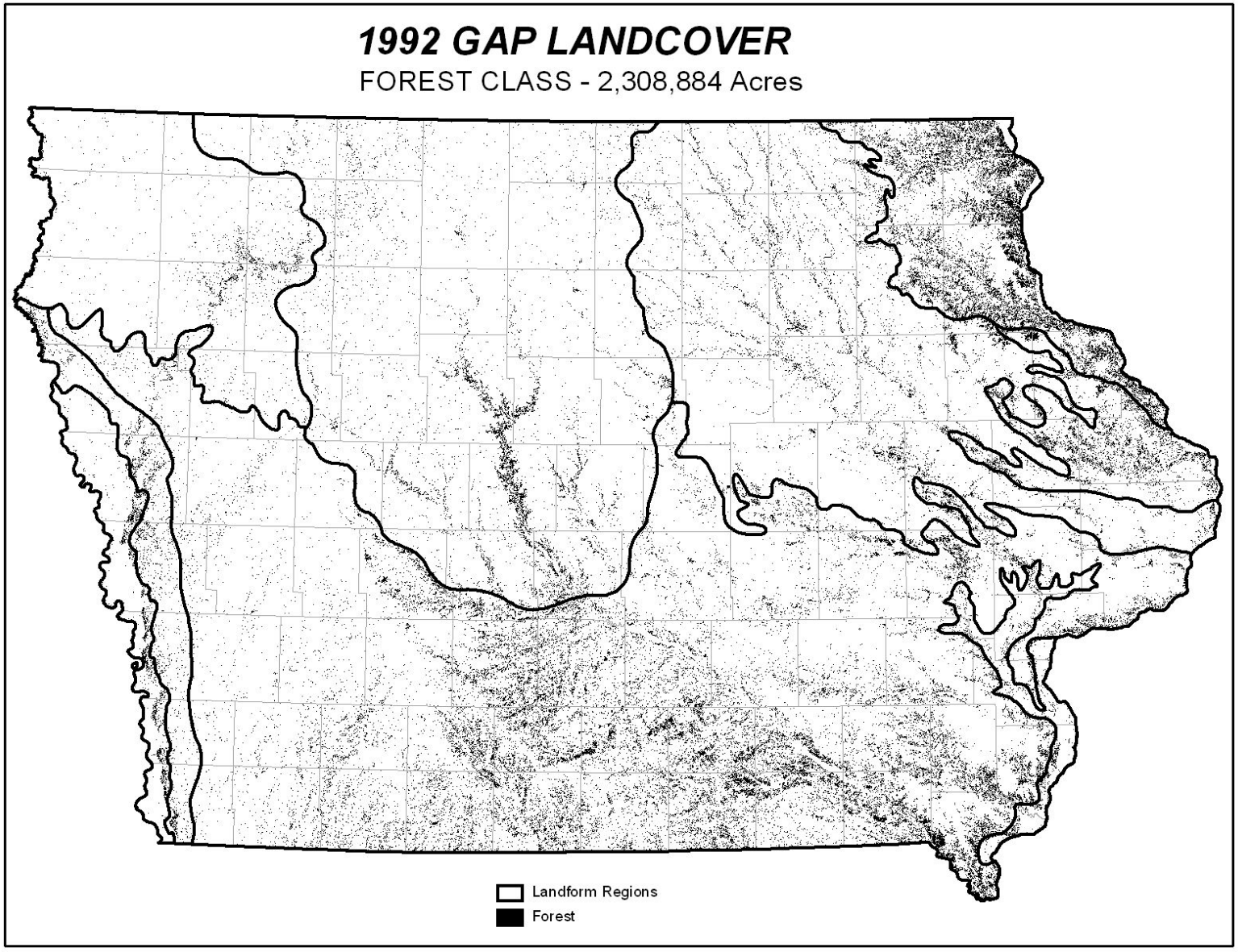
[1] Refer to map 2-1 for the description of landforms.

Habitat Maps. Caution should be used when interpreting the habitat distribution maps (Map 1 - Map 8). Iowa GAP encountered significant problems trying to distinguish between closely related vegetative alliances with similar infrared reflectances. Warm season grasses were difficult to reliably separate from

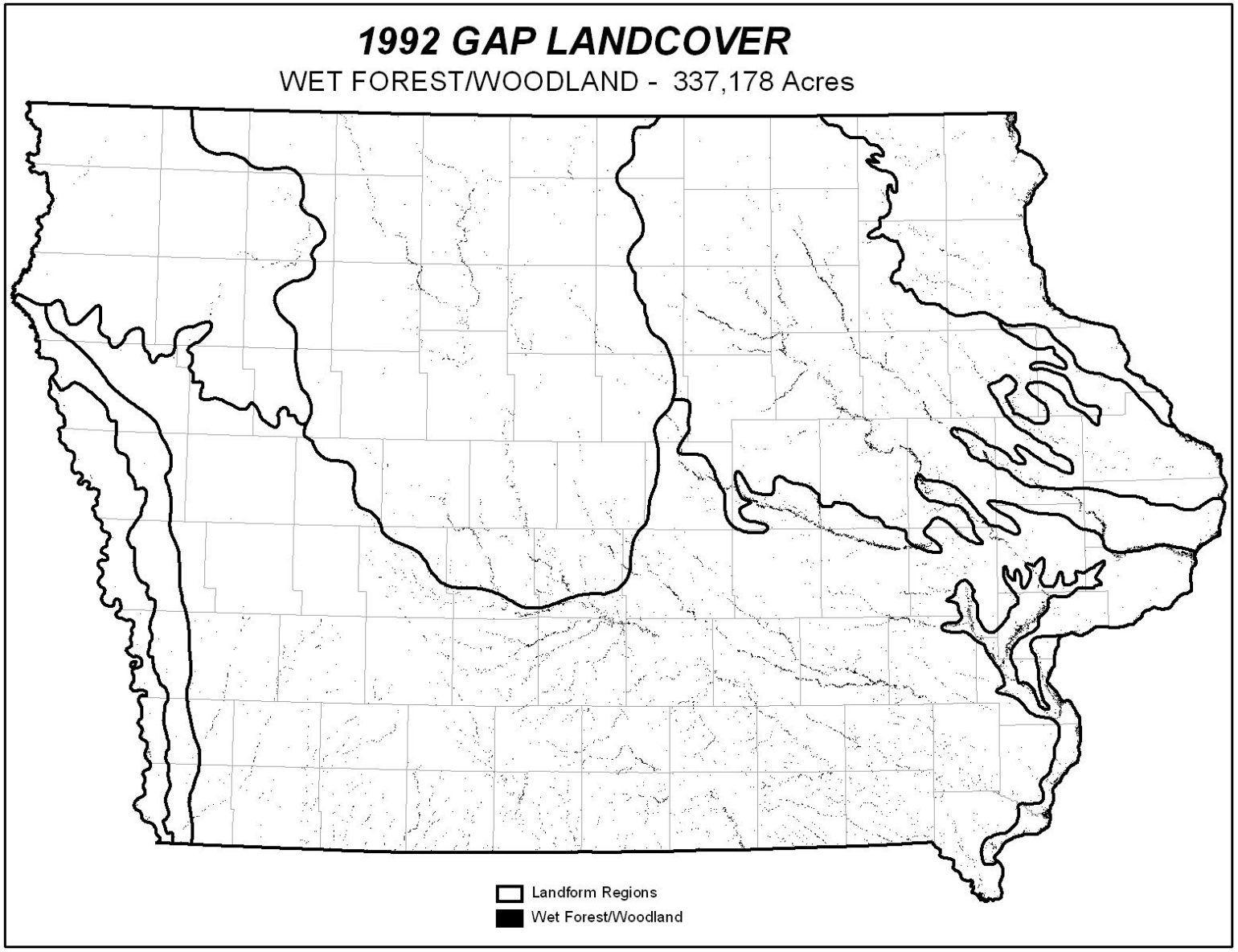
cool season grasses and pasture. Map 4-6 clearly overestimates the amount of warm season grasses in Iowa. Some fields, particularly CRP fields, have plots of warm season grasses in an otherwise cool season landscape. Forested vegetation alliances, nearly all deciduous, could not be consistently identified by canopy reflectance. Identifying each alliance would require substantial ground-truthing to resolve. The major habitat categories listed in Table 4-1 (wooded, wetland, grassland and agricultural land), however, could be distinguished reliably. Habitats are discussed at finer levels in this Plan only where acceptable accuracy was attained. Other sources of information (National Wetlands Inventory, USDA Forest Service, etc.) were used to supplement the GAP data when it was available.

The maps do give a visual impression of the distribution of wildlife habitats, and they do highlight two problems that are discussed later in the Plan. Most habitat blocks are small and highly fragmented compared to Iowa's original landscape. A century of sub-dividing the land for agricultural purposes has left few large blocks in any vegetative cover except for row crops. The current average size of a wooded habitat is just 40 acres. This has implications for area-sensitive species that require large blocks of habitat to survive or reproduce successfully. It may also make it difficult for less mobile species to pioneer new habitats or to find replacement habitat if their habitat patch is destroyed or altered unacceptably.

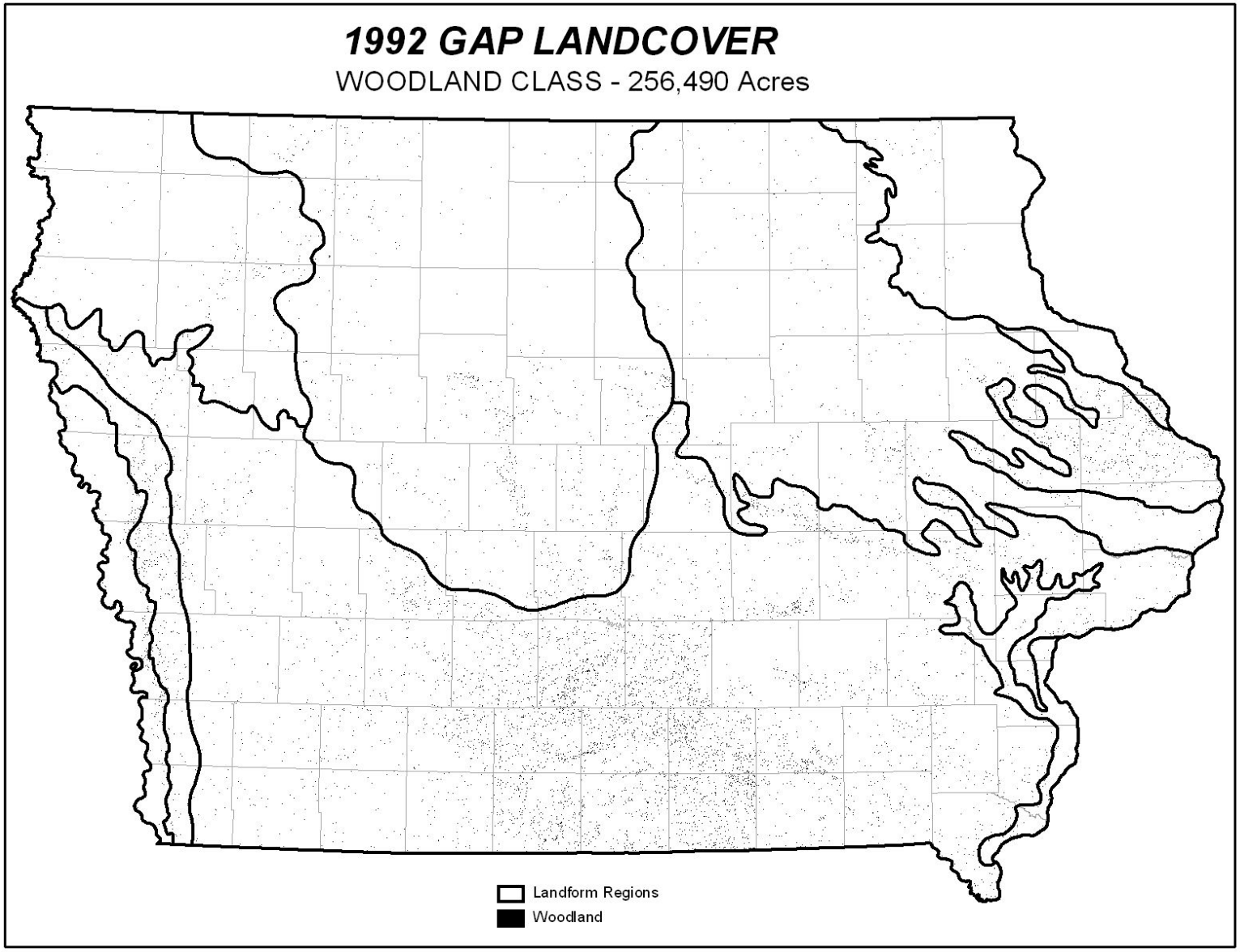
Map 4-1. Forest Land Cover



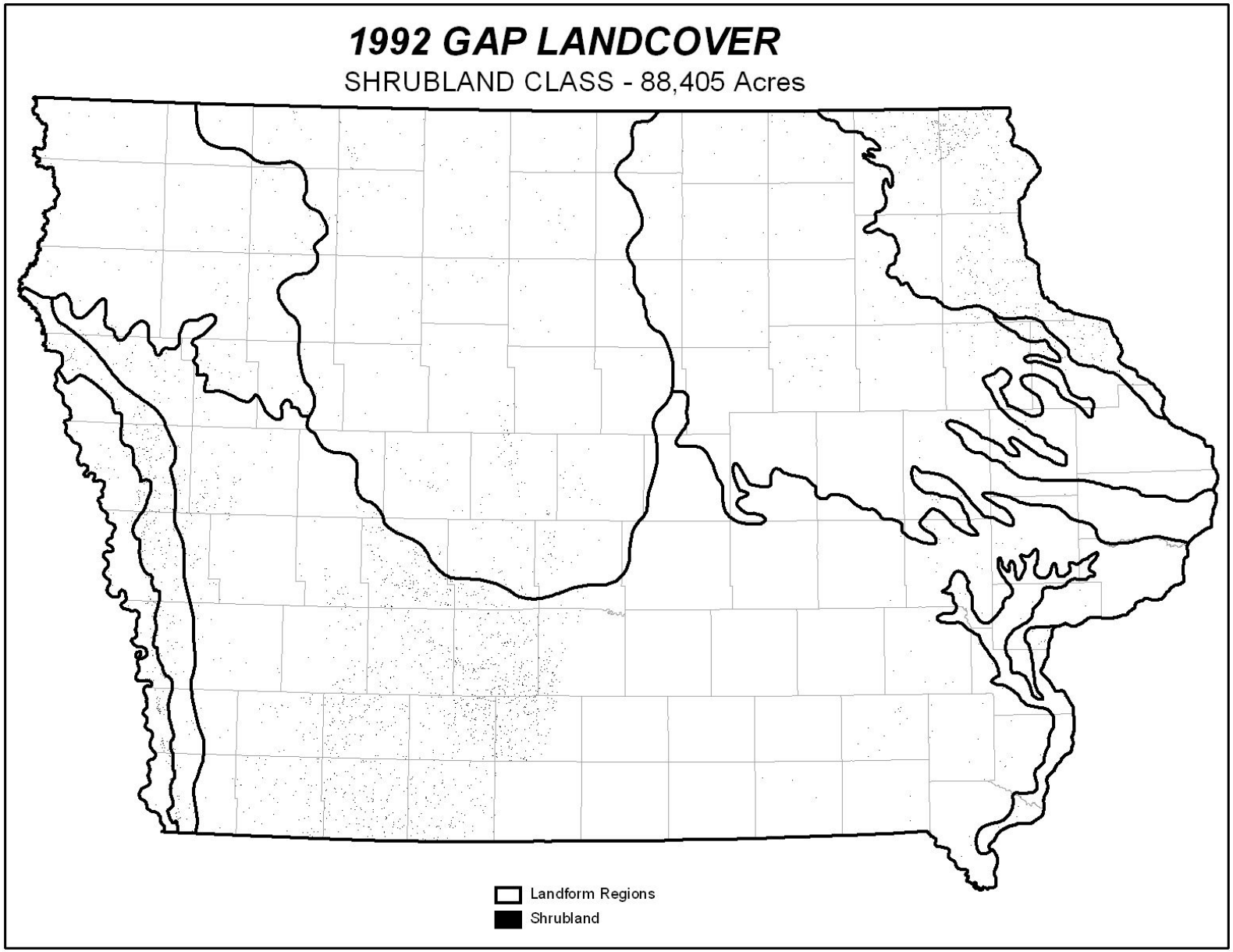
Map 4-2. Wet Forest/Woodland Land Cover



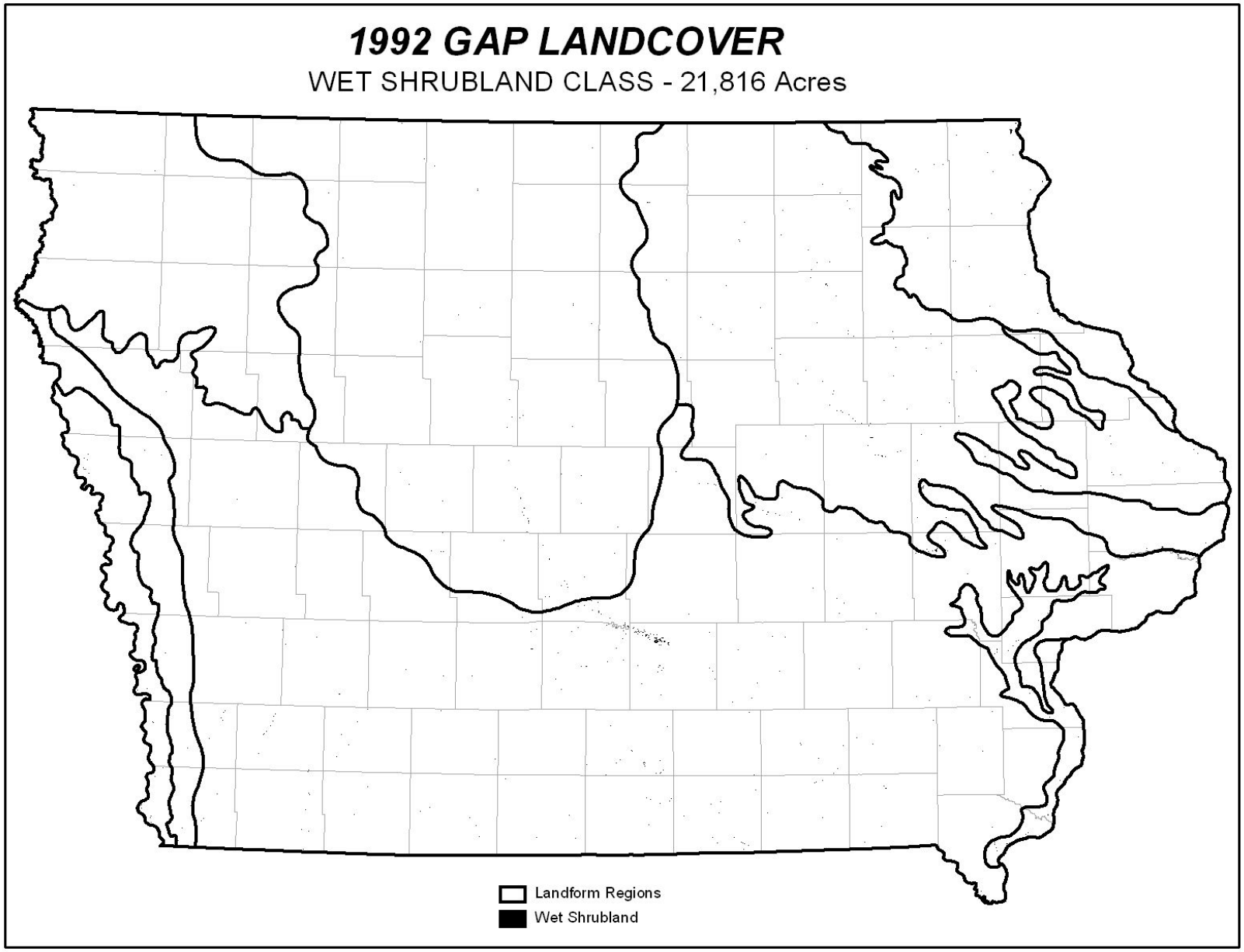
Map 4-3. Woodland Land Cover



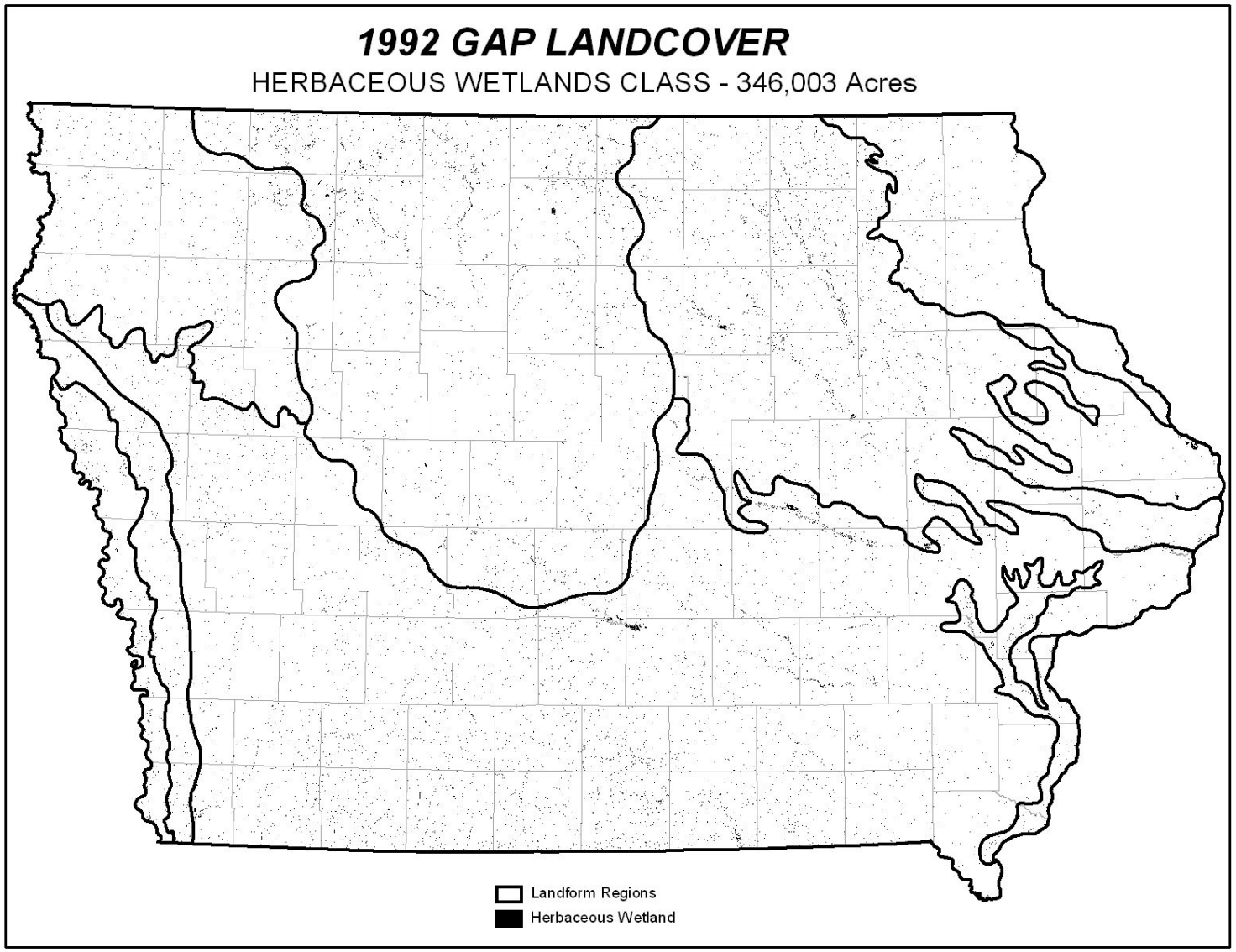
Map 4-4. Shrubland Land Cover



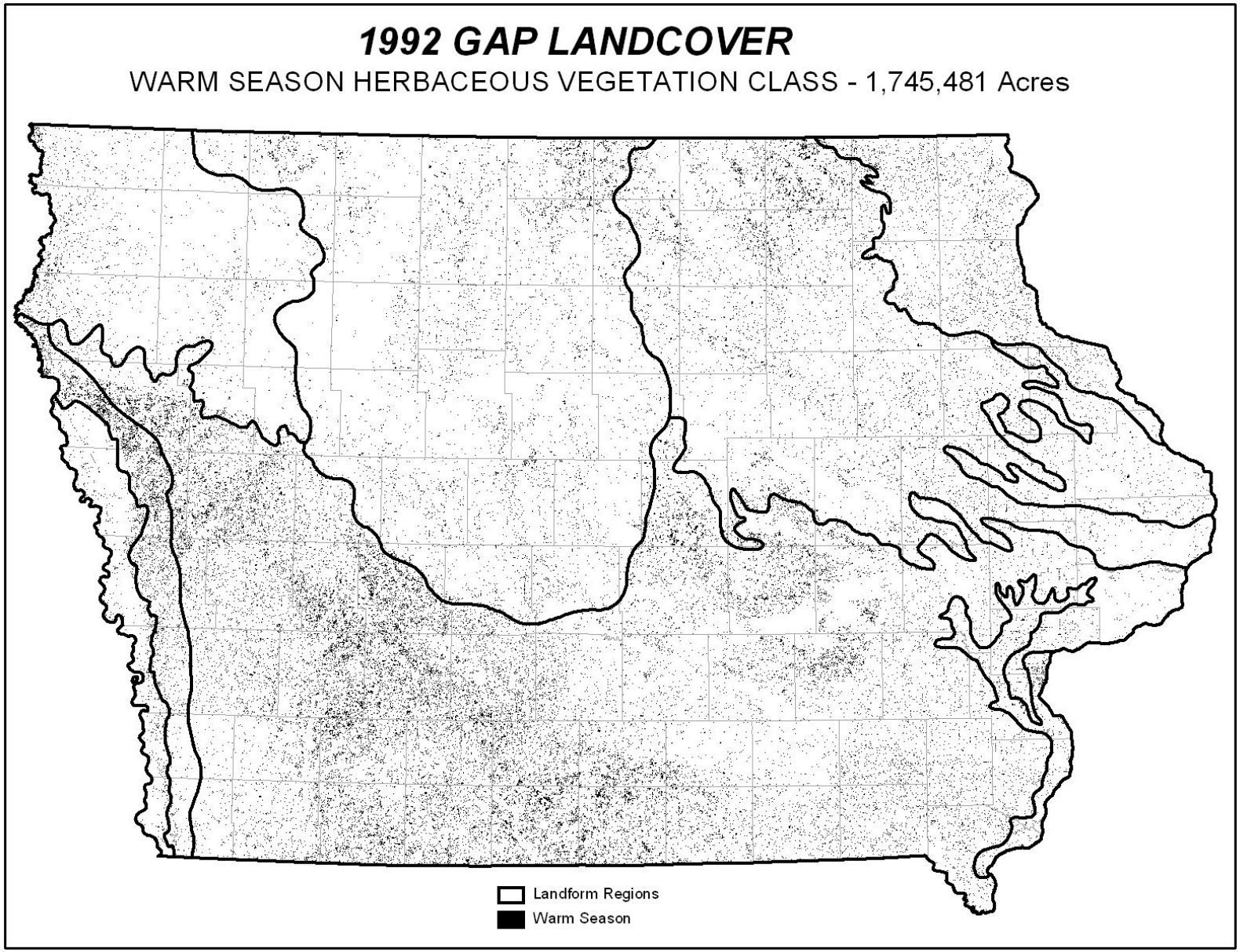
Map 4-5. Wet Shrubland Land Cover



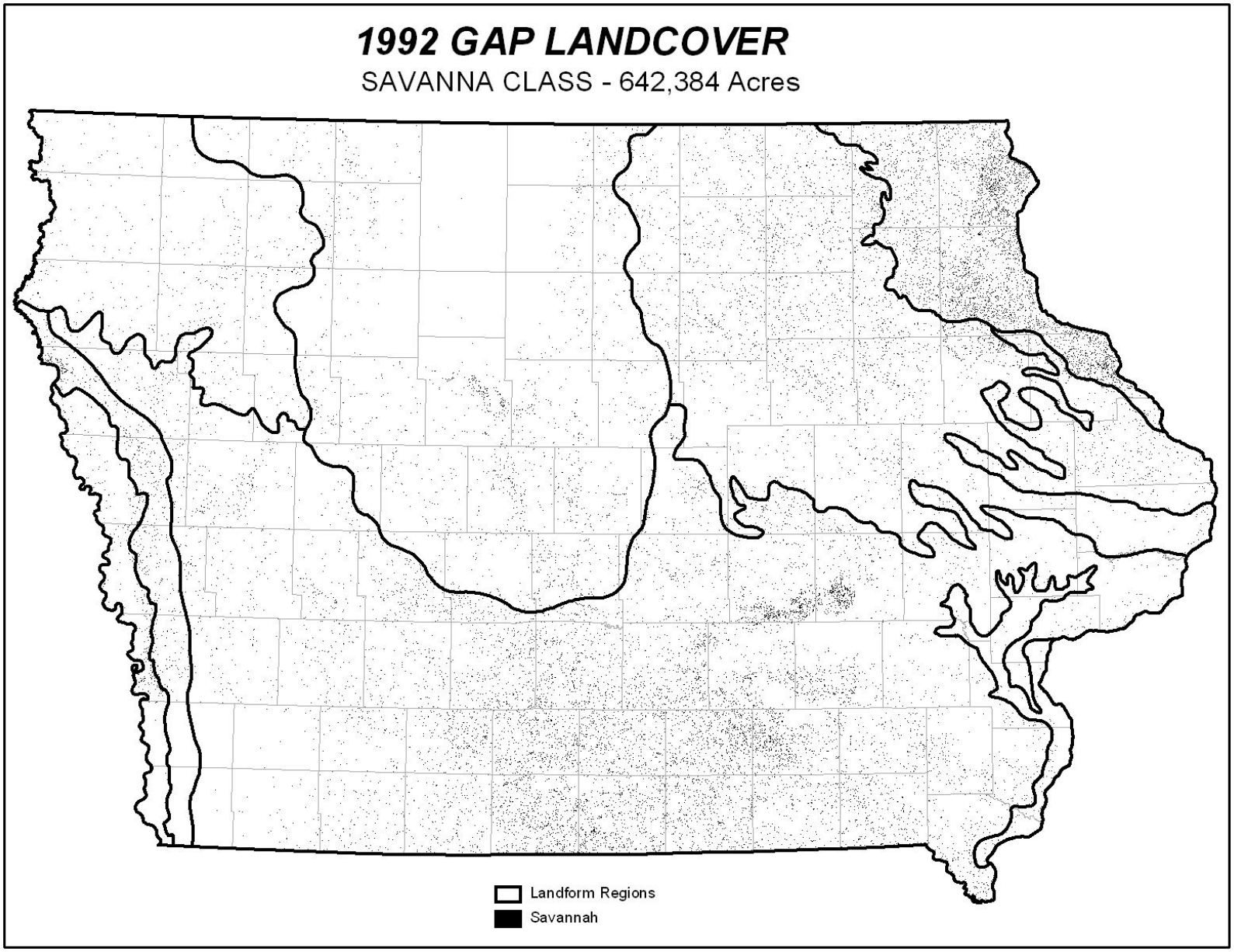
Map 4-6 Herbaceous Wetland Land Cover



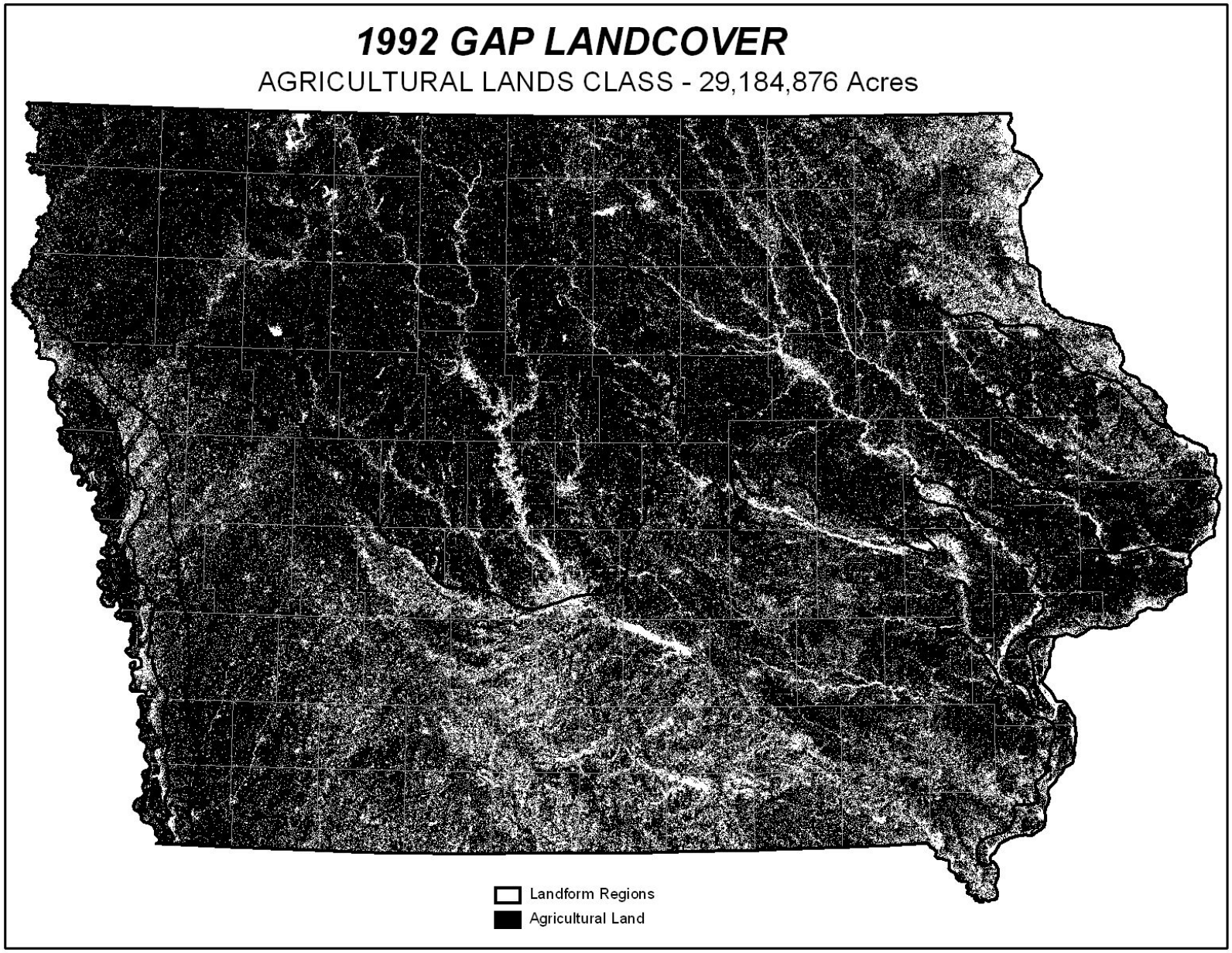
Map 4-7 Warm Season Herbaceous Land Cover



Map 4-8. Savanna Land Cover



Map 4-9. Agricultural Land Cover.



Aquatic Habitat Classes

The Steering Committee selected lakes, ponds, rivers, streams, creeks, impoundments and wetlands as the aquatic habitats to be used in the ICWCP (Table 4-4). In the natural world, there is no clear delineation between these aquatic habitat classes. Creeks grade into streams and streams grade into rivers. There are many sizes of water bodies between small ponds and large lakes. Shallow natural lakes, or open water marshes, provide a significant transition between lakes and streams. They are extremely sensitive to fluctuations in water quality, water level and invasive species. Aquatic classes may show differences in flow rate, bottom substrate, water quality and clarity, water temperature and dissolved oxygen content as well as differences in associated plant and animal species. Aquatic species utilizing vegetated herbaceous wetlands are included in the Herbaceous Wetland terrestrial habitat class (Table 4-1)

Table 4-4. Aquatic Habitat Classes Used in the ICWCP

Aquatic Habitat	Description
River	Large flowing bodies of water, normally with permanent flow and draining over 100 square miles.
Stream	Smaller flowing bodies of water, normally permanent, that serve as tributaries to rivers and drain less than 100 square miles.
Creek	Even smaller flowing stretches, often intermittent and ephemeral, that flow into streams
On-stream Impoundment	Slowly flowing bodies of water formed from artificial damming of a river, creek or stream, generally less than 500 acres in size and having a watershed to lake ratio >200:1.
Backwater	Slow flowing bodies of water associated with larger river systems. Back-channel low-lying areas filled with water during high flow events but may be completely isolated from the river during low flow and may exhibit no flow during these periods. They are especially prevalent on the Mississippi River.
Oxbow	A sub-class of backwaters, they are water bodies formed in old river channels that are now cut off from the main channel and flow of a river
Lake	Large bodies of water exhibiting little or no flow with emergent vegetation over less than 25% of the surface area. They may be either natural or constructed.
Shallow lake	Open freshwater systems where maximum depth is less than 10 feet. Normally in a permanent open water state due to the altered hydrology of watersheds and unmanaged outlet structures that maintain artificially high water levels. May be fringed by a border of emergent vegetation in water depths less than 6 feet. When clear, they are dominated by emergent and submergent vegetation.
Pond	Smaller standing bodies of water, often exhibiting large swings in dissolved oxygen and water temperatures and generally less than 10 acres in size

Natural lakes are most common in the NW Iowa Plains and the Des Moines lobe (Table 4-5). Thirty-one major natural lakes with a combined surface area of almost 29,000 acres and 17 marsh-like shallow lakes with over 3,000 acres of combined surface area are still present in Iowa in spite of the extensive drainage of the past 150 years.

An oxbow is formed when river channels change course and sediments block the entrance and exit of a meander in the old channel. Large oxbows are found along the Missouri and Mississippi Rivers and smaller, pond-like oxbows are found along many interior rivers and streams.

Constructed lakes include recreational lakes, municipal water supplies, river impoundments and surface mine lakes. These are generally small - less than one-fourth are over 100 acres. More than 200 man-made dams on rivers, streams and creeks impound from 15 acres to 19,000 acres. Four Corps of Engineers flood control reservoirs on the Des Moines river (Saylorville and Red Rock reservoirs), the Iowa river (Coralville Reservoir) and the Chariton river (Rathbun Reservoir) are the largest.

There are more than 87,000 ponds statewide. Most are in the Southern Iowa Drift Plain south of Iowa Highway 92. Ponds are generally less than 10 acres. An estimated 53% of Iowa's surface water area is in private ownership, and that vast majority of that acreage is in farm ponds.

Iowa has over 19,000 miles of interior rivers and streams. There are 87 cold water streams located in northeast Iowa with a combined length of 266 miles. The 25 largest interior rivers extend over 3,500 miles and numerous smaller creeks and streams feed each.

All interior rivers and streams are part of either the Mississippi or the Missouri River systems. The Mississippi River watershed is 38,860 square miles (69 % of Iowa's surface area). The Missouri River drains 17,379 square miles (31%).

Wetlands are transitions between terrestrial and aquatic systems and have saturated soil for a majority of the growing season. All wetlands have three things in common: hydric soils, a hydrology, and the presence of aquatic plants. Many different wetland classifications exist. In general, wetlands can be classified as:

- Marshes, open and unforested wetlands dominated by cattails, sedges and grasses;
- Wet meadows which are dominated by sedges with very shallow water levels or are just saturated to soil level;
- Bogs and fens which are made up of unique living plants over partially decomposed organic matter (peat).

Wetlands in these categories are included with the terrestrial habitat classes under Herbaceous Wetlands (Table 4-1).

Map 4-10. Major Lakes and River Systems of Iowa (Source: Iowa DNR)

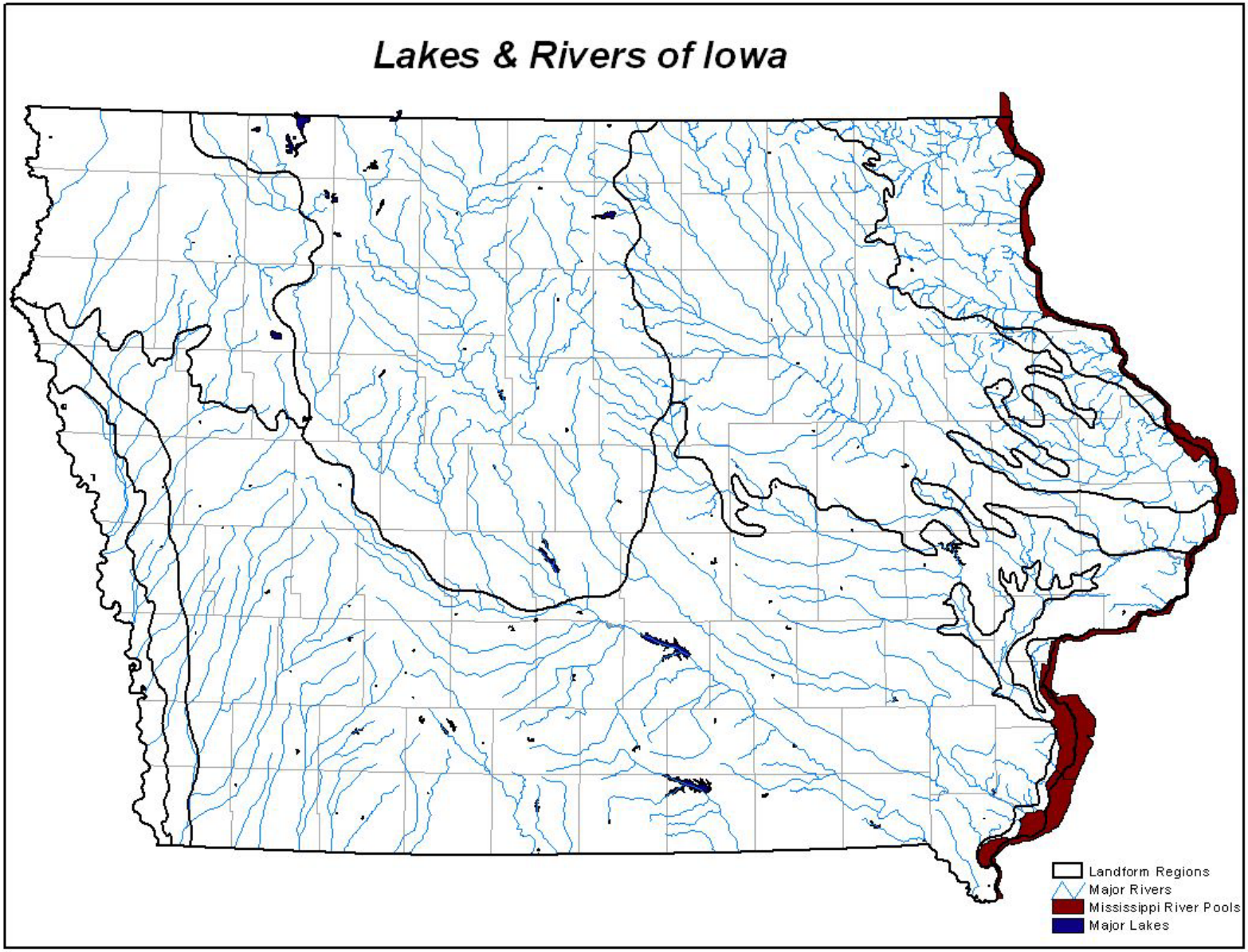


Table 4-5. Lake types by landform.

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Landform	Shallow Natural Lake	Deep Natural Lake	Constructed Lake	Oxbow	Back-water	Pond	Reservoir	Impoundment	Surface Mines
Des Moines Lobe	23-8,996	14-21,217	10-2,045			32-72	1-5,400	9-2	39-600
Iowan Surface			9-770	14-94	1-5	27-84		28-616	32-599
Loess Hills			5-98			7-25			4-4
Miss. Alluvial Plain				3-22	5-3,275	6-9			
Mo. Alluvial Plain			6-218	8-3,089		3-5			6-96
NW Iowa Plains		1-3,097	5-147			7-24			22-184
Paleozoic Plateau			3-245		7-200	7-16		3-3	2-12
S. IA. Drift Plain		1-134	113-14,336	7-67	23-901	135-384	3-26,680	9-470	20-605
TOTALS	23-8,996	16-24,448	151-17,859	32-3,272	36-4,381	224-619	4-32,080	49-1,091	125-2,100

More detailed maps of Iowa lakes and rivers by region are shown in Appendix 18 as Maps 18-1 to 18-8. Rivers and streams were taken from the Environmental Protection Agency's National Hydrologic Dataset and the lake information from the Iowa Public Lakes Dataset (J. Kopaska, IDNR Fisheries Bureau). The Public Lakes Dataset lake types differ somewhat from the aquatic class definitions listed above, but the maps provide a valuable picture of the extent and distribution of these aquatic systems in Iowa. Table 4-5 provides a summary of the lake data shown on these maps.

Habitat Preferences of SGCN

The Working Groups assigned each SGCN to a habitat class or classes. Aspects of each species' biology and behavior complicated this process. Some are generalists and can occupy a variety of habitats; others have very narrow habitat tolerances. Some species require different habitats at different stages in their life cycles, at different seasons of the year or at different times of the day. Working Groups identified those habitats that were considered to be the most critical or limiting to the species distribution and abundance in Iowa. Habitat preferences are taken from the existing literature and do not necessarily include all of the terrestrial and aquatic habitat classes listed in this Plan. Habitat preferences for individual SGCN are found in Appendix 14.

SGCN with common habitat preferences were then grouped into the 9 terrestrial and 8 aquatic habitat classes. Species with more than one critical habitat were listed in each class so more than the 297 SGCN appear in comparisons between habitats. Groupings of SGCN by habitat class give a very general overview useful only for identifying habitat protection or restoration priorities at the landscape level. Detailed habitat management plans for SGCN must consider their entire individual habitat needs. Individual SGCN grouped into habitat classes are listed in Appendix 15.

SGCN were found in all of the terrestrial and aquatic habitats in Iowa (Table 4-6). Flowing water aquatic habitats had the greatest number of SGCN of any habitat class, followed by herbaceous wetlands. The number of aquatic SGCN nearly equals the number of terrestrial species, yet surface water covers just 1% of Iowa. (If wetlands were included with aquatic habitats instead of terrestrial, aquatic habitats would have the most SGCN.) Aquatic and semi-aquatic species had the highest percentage of their species listed as SGCN (Table 3-11).

Herbaceous wetlands had the greatest number of SGCN of any terrestrial habitat class. Wooded habitats contained the greatest number when classes were combined into more easily identified categories. Grasslands, wetlands and agricultural lands followed in declining order.

Table 4-6. Summary of Habitat Preferences of SGCN by Habitat Class.

	Taxonomic Class								
Habitat Class	**Birds**	**Mammals**	**Reptiles & Amphibians**	**Butterflies**	**Land Snails**	**Dragonflies & Damselflies**	**Fish**	**Mussels**	**Total**
Terrestrial Habitat Classes	**169**	**34**	**63**	**42**	**8**	**7**	**0**	**0**	**298**
Wooded	**74**	**19**	**19**	**12**	**8**	**0**	**0**	**0**	**132**
Forests	24	10	2	3	8	0	0	0	47
Wet Forests/Woodlands	18	3	7	0	0	0	0	0	28
Woodlands	18	4	10	9	0	0	0	0	41
Shrubland	14	2	0	0	0		0	0	16
Wetlands	**39**	**2**	**14**	**7**	**0**	**7**	**0**	**0**	**69**
Wet Shrubland	4	0	3	0	0	0	0	0	7
Herbaceous Wetlands	35	2	11	7	0	7	0	0	62
Grasslands	**32**	**10**	**23**	**12**	**0**	**0**	**0**	**0**	**77**
Warm Season Herbaceous	23	8	16	10	0	0	0	0	57
Savanna	9	2	7	2	0	0	0	0	20
Agricultural Lands	**24**	**3**	**7**	**11**	**0**	**0**	**0**	**0**	**45**
Aquatic Habitat Classes	**0**	**1**	**22**	**0**	**0**	**36**	**131**	**41**	**231**
River	0	1	4	0	0	3	46	19	73
Stream	0	0	3	0	0	5	15	7	30
Creek	0	0	1	0	0	3	22	5	31
Impoundment	0	0	1	0	0	0	9	1	11
Backwater	0	0	7	0	0	3	17	1	28
Lake	0	0	2	0	0	8	17	4	31
Pond	0	0	4	0	0	14	5	4	27
Total	**169**	**35**	**85**	**42**	**8**	**43**	**131**	**41**	**529**

Priorities for Habitat Protection

It is tempting to establish priorities for protecting SGCN and their habitats based on their numerical order in Table 4-6 i.e. the habitats with the most SGCN should receive the highest priority for protection. There are several factors that argue against taking only that approach:

- Agricultural lands make up an overwhelming proportion of the state and have the lowest number of SGCN. Row crops and pastures have very little vegetative and wildlife diversity, however, and they appeal to generalist species that can survive in small blocks of associated habitat. The low number of SGCN found in agricultural lands likely reflects their general unattractiveness to wildlife.

- The amount of native prairie remaining in the state is usually listed as 30,000 acres, most in extremely small and scattered plots. Pasture in Iowa has historically been grazed so heavily that habitat remains only for species attracted to short and sparse grasslands. Anecdotal evidence indicates that as cattle husbandry has shifted to confinement operations at least some pastures are now lightly grazed. No quantitative estimates are available.

- Most CRP lands in Iowa are planted to cool season grasses that provide habitat for some SGCN but not the full array that would be found in a like acreage of native prairie. History suggests that the CRP program, like past U.S. Department of Agriculture land retirement programs, will eventually end and those grasslands will revert to row crops.

- Most ungrazed grasslands are road ditches planted to a variety of cool season grasses that are mowed frequently during the nesting season. Only habitat generalists like meadowlarks and red-winged blackbirds are attracted to these habitats.

Most of the grassland SGCN are habitat specialists that evolved in vast expanses of native prairie. They were adapted to a diversity of vegetative conditions ranging from bare ground following new burns to dense littler layers and shrubby invasions after years without burning or grazing. Few of Iowa's current grasslands meet those criteria.

Wooded lands probably provide the greatest amount of somewhat-natural wildlife habitat of any of the broad habitat categories, yet they have the greatest number of SGCN. The remnant timber stands of the 1970's are in the process of developing into mature forests. Some have changed character from oak-dominated to more shade-intolerant species like sugar maple, particularly in the Paleozoic Plateau. These older stands provide habitat for species adapted to late successional stages. At the same time, a million acres of recently grazed pasture is reverting to early successional forest. There may simply be a wider

range of habitat niches available in wooded habitats that are attracting a greater diversity of wildlife. Forest-dwelling migratory birds may be imperiled in some other part of their range and thus are on the list of SGCN. On the other hand, the issues of fragmentation, habitat block size and the degraded quality of many of Iowa's wooded habitats make it difficult to know if they are productive habitats or are merely population sinks.

Setting priorities for conserving wildlife habitats is thus affected by all these factors:

- The general lack of all wildlife habitat in Iowa;
- The lack of specific knowledge on the distribution and abundance of most SGCN;
- The presence of SGCN in all terrestrial and aquatic habitats;
- The difficulties in identifying habitat quality.

Given these conditions, the best approach may be to accept that all wildlife habitats in Iowa that support SGCN have been greatly reduced and all are imperiled to some extent by land use decisions. Efforts to preserve SGCN should address all species in all habitats.