APPENDIX 15. SGCN GROUPED BY HABITAT CLASS

15-1. Terrestrial Habitat Classes

Table 15-1. Habitat Preferences of SGCN - Forest Habitat

Group	Common Name	Comments
Birds		
	Bald eagle	Prefers riparian forest
	Red-shouldered hawk	Prefers riparian forest
	Broad-winged hawk	Large contiguous forest
	Peregrine falcon	Nests in rocky cliffs along major rivers
	Ruffed grouse	Prefers large forests or woodlands containing areas of high stem density
	American woodcock	Prefers moist brushy woodlands w/openings
	Black-billed cuckoo	Prefers woodland thickets w/2’ to 6’ shrubs
	Yellow-billed cuckoo	Prefers woodland thickets w/4’ to 8’ shrubs
	Whip-poor-will	Prefers ungrazed forest w/open understory
	Acadian flycatcher	Prefers riparian areas of large unfragmented forests
	Least flycatcher	Prefers mature hardwoods, but frequents openings
	Brown creeper	Prefers riparian forest
	Veery	Prefers moist forests w/low tree & shrub understory
	Wood thrush	Prefers mature, moist forest w/closed canopy
	Blue-winged warbler	Uses overgrown brushy areas in forest clearings
	Golden-winged warbler	Prefers woodland openings w/brush and grass
	Canada warbler	Prefers mature forest w/shrubby undergrowth
	Cerulean warbler	Prefers large, mature, unfragmented forest
	Prothonotary warbler	Prefers swampy, mature riparian forest
	Worm eating warbler	Prefers large, unfragmented forests w/shrub understory
	Black & white warbler	Prefers large, mature, unfragmented forests
	Hooded warbler	Prefers large, mature, unfragmented forests
	Louisiana waterthrush	Prefers large, mature forests w/permanent streams
	Kentucky warbler	Prefers riparian, ravine areas within forest understory
Mammals		
	Hayden's shrew	Riparian areas

	Short-tailed shrew	
	Evening bat	Riparian areas
	Indiana bat	Riparian areas
	Northern myotis	
	Red squirrel	
	Red-backed vole	
	Woodland vole	
	Spotted skunk	
	Bobcat	
Reptiles and Amphibians		
	Timber rattlesnake	Deciduous forest with limestone outcrops
	Copperhead	Rocky forested hillsides
Butterflies		
	Pipevine swallowtail	
	Columbine duskwing	Rocky wooded ravines
	Hickory hairstreak	
Land Snails		
	Iowa Pleistocene snail	Algific slopes
	Frigid ambershell	Algific slopes
	Minnesota Pleistocene snail	Moderate cliffs
	Iowa Pleistocene succinea	Moderate cliffs
	Briarton Pleistocene snail	Algific slopes
	Hubricht's vertigo	Algific slopes
	Iowa pleistocene vertigo	Algific slopes
	Bluff vertigo	Limestone and dolomite cliffs and outcrops

Table 15-2. Habitat Preferences of SGCN - Wet Forest/Woodlands Habitat

Group	Common Name	Comments
Birds		
	Yellow-crowned night-heron	Prefers mature lowland woods
	Osprey	Prefers riparian areas
	Bald eagle	Prefers riparian areas
	Red-shouldered hawk	Prefers riparian areas
	Peregrine falcon	Nests in rocky cliffs along major rivers
	American woodcock	Prefers damp, brushy woods w/grassy openings
	Black-billed cuckoo	Prefers woodland thickets w/2' to 6' shrubs
	Long-eared owl	Mixed conifer/deciduous woodland
	Red-headed woodpecker	Riparian woodland w/snags
	Brown creeper	Depend on extensive forests w/standing dead trees
	Acadian flycatcher	Prefers riparian areas of large, unfragmented forests
	Veery	Prefers moist forests w/low tree & shrub understory
	Wood thrush	Prefers mature, moist forest w/closed canopy
	Cerulean warbler	Prefers large, mature, unfragmented forest
	Pronothonotary warbler	Prefers swampy, mature riparian forest
	Louisiana waterthrush	Prefers large, mature forests w/permanent streams
	Kentucky warbler	Prefers riparian, ravine areas within forest understory
	Rusty blackbird	Prefers riparian areas
Mammals		
	Hayden's shrew	Riparian areas
	Least shrew	Riparian areas
	Evening bat	Riparian areas
Reptiles and Amphibians		
	Blue-spotted salamander	Woodland pools
	Central Newt	Well vegetated woodland pools
	Smallmouth salamander	Woodland pools
	Crawfish frog	Floodplain forests
	Wood turtle	Riparian habitats
	Yellowbelly water snake	Open canopy
	Copperbelly water snake	Open canopy

Table 15-3. Habitat Preferences of SGCN - Woodland Habitat

Group	Common Name	Comments
Birds		
	Bald eagle	Riparian area
	Red-shouldered hawk	Riparian area
	Swainson's hawk	Savanna or open woodland
	Ruffed grouse	Prefers large forests or woodlands containing areas of high stem density
	American woodcock	Moist brushy woodlands
	Black-billed cuckoo	Woodland thickets w/2'-6' shrubs
	Yellow-billed cuckoo	Prefers woodland thickets w/4' to 8' shrubs
	Long-eared owl	Mixed conifer/deciduous woodland
	Whip-poor-will	Prefers ungrazed forest
	Red-headed woodpecker	Prefers oak savanna w/snags
	Least flycatcher	Prefers mature hardwoods, but frequents openings
	Bewick's wren	Open woodlands & shrublands
	Northern mockingbird	Thickets of savanna or very open woodland
	White-eyed vireo	Woodland edge brushy habitat
	Blue-winged warbler	Uses overgrown brushy areas in forest clearings
	Golden-winged warbler	Prefers woodland openings w/brush and grass
	Yellow-breasted chat	Early successional woodland
	Eastern towhee	Brushy, wooded edges of woodland
Mammals		
	Hayden's shrew	*Riparian areas*
	Short-tailed shrew	*hylophaga sp.*
	Least shrew	Riparian areas
	Bobcat	
Reptiles and Amphibians		
	Central Newt	Vicinity of woodland pools
	Blue-spotted salamander	Vicinity of woodland pools
	Smallmouth salamander	Vicinity of woodland pools
	Slender glass lizard	Dry, open woodland and woodland edge
	Western worm snake	Rocky woodlands
	Prairie kingsnake	Open woodland and woodland edge
	Speckled kingsnake	Wooded hillsides, woodland edge
	Bullsnake	Deciduous woodland edge
	Smooth earth snake	Rocky, wooded deciduous hillsides; woodland edge
	Timber rattlesnake	Rocky, deciduous woodland
Butterflies		
	Pepper and salt skipper	Woodland edges
	Dreamy duskywing	Woodland openings or edges
	Columbine duskywing	Rocky wooded ravines

Group	Common Name	Comments
	Olympia marble	Open woodlands
	Zebra swallowtail	Riparian areas
	Silvery blue	Open woodlands
	Zabulon skipper	Brushy openings
	Edward's hairstreak	Forest edge or clearings
	Striped hairstreak	Forest openings and edges

Table 15-4. Habitat Preferences of SGCN - Shrubland Habitat Class.

Group	Common Name	Comments
Birds		
	Sharp-tailed grouse	Prefer grassland w/some shrubs
	Northern bobwhite	Combination of grassland, brush, open woods
	Black-billed cuckoo	Woodland thickets, esp. riparian
	Yellow-billed cuckoo	Woodland thickets, 4’ to 8’ shrubs
	Bewick's wren	Shrublands preferred near woodland
	Northern mockingbird	Shrublands of open country or savanna
	Loggerhead shrike	Thorny shrublands of open country or savanna
	White-eyed vireo	Shrubby habitat beside woodland
	Bell's vireo	Prefers brushy, tangled habitat often in savannas
	Blue-winged warbler	Wooded openings w/late succession and grasslands
	Golden-winged warbler	Shrubby grassland/woodland
	Yellow-breasted chat	Prefers dense overgrown, brushy pastures
	Eastern towhee	Inhabits brushy wooded edge
	Field sparrow	Favors brushy successional habitat
Mammals		
	Least shrew	Riparian areas
	Bobcat	

Table 15-5. Habitat Preferences of SGCN - Wet Shrubland Habitat

Group	Common Name	Special Needs
Birds		
	Black-crowned night heron	Wetlands ringed with shrubs
	Willow flycatcher	Prefers willow thickets on wetland edges
	Rusty blackbird	Shrubby wetlands
	Bell’s vireo	Often shrubby riparian areas
Reptiles and Amphibians		
	Northern prairie skink	Open shrubland
	Smooth greek snake	Open shrubland
	Eastern massasauga rattlesnake	Spring and fall

Table 15-6. Habitat Preferences of SGCN - Warm Season Herbaceous Habitat

Group	Common Name	Comments
Birds		
	Northern pintail	Nests in grassland
	Northern harrier	Prefers large grassland tracts +100 acres
	Greater prairie- chicken	Prefers large grassland tracts +2,000 acres
	Sharp-tailed grouse	Open prairie w/patches of trees or shrubs
	Northern bobwhite	Prefers medium ht. grasslands w/shrubs & forbs
	Yellow rail	Wet meadows & fens w/sedges
	Whooping crane	Prefers large wetland complexes w/grasslands adjacent
	Sandhill crane	Prefers large wetland complexes w/grasslands adjacent
	Upland sandpiper	Prefers short-to-medium ht. grasslands w/forbs.
	Wilson’s phalarope	Shallow marshes w/upland grass & forbs
	Burrowing owl	Prefers short height grasslands
	Short-eared owl	Prefers large grassland tracts +200 acres
	Common nighthawk	Grasslands w/bare areas for nesting
	Sedge wren	Prefers tall grass infrequently disturbed
	Dickcissel	Prefers medium high grass w/sparse forbs
	Field sparrow	Prefers old grassland fields w/shrubs
	Lark sparrow	Prefers sand prairie w/sparse vegetation
	Grasshopper sparrow	Prefers short grass w/forbs
	Henslow's sparrow	Prefers tall grass and infrequent disturbance; weedy
	Nelson's Sharp-tailed sparrow	Prefers rank grasslands on wetland edge
	Le Conte's sparrow	Prefers grassy meadows; marsh edges
	Bobolink	Prefers medium height grass w/forbs
	Eastern meadowlark	Prefers trees in grass landscape
Mammals		
	Hayden's shrew	Riparian areas
	Short tailed shrew	
	White-tailed jackrabbit	
	Franklin's ground squirrel	
	Plains pocket mouse	
	Prairie vole	
	Spotted skunk	
	Bobcat	
Reptiles and Amphibians		
	Crawfish frog	Vicinity of prairie marshes
	Great plains toad	Mixed and short grass prairie
	Ornate box turtle	Sand prairie

Group	Common Name	Comments
	Yellow mud turtle	Ephemeral wetlands in sand prairie
	Slender glass lizard	Prairie with sandy or loose soil
	Six-lined racerunner	Sand prairie
	Northern prairie skink	Prairie-forest edge
	Great plains skink	Rocky mixed and short grass prairie; prairie-forest edge
	Smooth green snake	Wet prairie; oldfield
	Prairie kingsnake	High quality prairie to oldfield
	Speckled kingsnake	Native prairie to oldfield
	Bullsnake	Native prairie to oldfield
	Western hognose snake	Sand prairie
	Eastern massasauga rattlesnake	Wet prairie, upland grassland adjacent to wetland
	Timber rattlesnake	Hill prairie
	Prairie rattlesnake	Mixed and short grass prairie
Butterflies		
	Arogos skipper	Prairies and sand prairies
	Dusted skipper	Bluestem grasslands and oldfields
	Common ringlet	Prairies and open grassy areas
	Olympia marble	Prairies and grasslands
	Dakota skipper	Tall grass prairie
	Leonardus skipper	Open grassy areas
	Otoe skipper	Tallgrass prairie
	Poweshiek skipper	High quality prairie
	Byssus skipper	Tallgrass prairie
	Regal fritillary	Prairie and open grasslands

Table 15-7. Habitat Preferences of SGCN - Herbaceous Wetlands Habitat

Group	Common name	Comments
Birds		
	American white pelican	Riparian areas w/islands
	American bittern	Large prairie marshes w/upland grassland
	Least bittern	Prairie marshes w/emergent vegetation
	Black-crowned night-heron	Prairie marshes w/emergent veg. and/or shrubs/trees
	Yellow crowned night- heron	Wooded riparian areas w/sparse understory
	Trumpeter swan	Large prairie marshes w/emergent vegetation
	Northern pintail	Prairie marshes w/upland vegetation
	Canvasback	Bulrush & cattail prairie marsh
	Redhead	Cattail & bullrush hemi-marshes
	Northern harrier	Prairie/grasslands assoc. w/marshes
	Osprey	Lakes, reservoirs, rivers w/trees
	Yellow rail	Wet meadows & fens w/sedges
	King rail	Sedge meadow zones of wetland edges
	Common moorhen	Prairie hemi-marshes
	Whooping crane	Large wetland complex w/wet meadows/hay fields
	Sandhill crane	Large wetland complex w/wet meadows/hayfields
	Piping plover	Riparian open, sandy beaches & sandbars
	Wilson's phalarope	Shallow marshes w/upland grass & forbs
	Lesser yellowlegs	Shallow wetlands
	Greater yellowlegs	Shallow wetlands
	American golden plover	Mud flats, shallow wetlands
	Solitary sandpiper	Muddy, shallow wetlands
	Hudsonian godwit	Moderate vegetated shorelines of marsh
	American avocet	Shallow wetlands, mud flats
	Marbled godwit	Moderate vegetated shorelines of marsh
	Stilt sandpiper	Sheltered muddy wetland pools
	Buff-breasted sandpiper	Short-grass areas near water
	Short-tailed dowitcher	Mudflats & shallow ponds
	Forster’s tern	Large prairie marsh w/emergent vegetation
	Least tern	Open sandy beaches, sandbars of riparian areas
	Black tern	Large prairie marsh w/emergent vegetation
	Sedge wren	Tall rank grassland ringing marsh
	Le Conte’s sparrow	Prefers grassy meadows; marsh edges
	Nelson's sharp-tailed sparrow	Rank grasslands on wetland edge
	Rusty blackbird	Riparian areas w/trees or shrubs

Group	Common name	Comments
Mammals		
	Southern bog lemming	
	Spotted skunk	
Reptiles and Amphibians		
	Central newt	Well vegetated near woodland
	Smallmouth salamander	Near woodlands
	Crawfish frog	With abundant crayfish burrows
	Cricket frog	Mudflats near water
	Common musk turtle	Permanent, mud bottom
	Yellow mud turtle	Ephemeral with sandy soil
	Blanding's turtle	Wet vegetated
	Northern prairie skink	Wetland edge
	Diamondback water snake	Riparian
	Smooth green snake	Wetland edge
	Eastern massasauga rattlesnake	Sedge meadow, open marsh edge
Butterflies		
	Swamp metalmark	Wet meadows and marshes
	Common ringlet	
	Baltimore checkerspot	Fens, wet meadows and marshes
	Two-spotted skipper	Sedge meadows and marshes
	Dion skipper	Wetlands with sedges
	Mulberry wing	Marshes and fens
	Broad-winged skipper	Marshes and fens
Dragonflies and Damselflies		
	Carolina saddlebags	
	Canada darner	
	Green-striped darner	
	Four-spotted skimmer	
	Boreal bluet	
	Spotted spreadwing	
	Sweetflag spreadwing	

Table15-8. Habitat Preferences of SGCN - Savanna Habitat

Group	Common Name	Comments
Birds		
	Swainson's hawk	Prefers savanna over woodland
	Barn owl	Prefers savanna over woodland
	Long-eared owl	Prefers areas of woodland-grassland interface
	Red-headed woodpecker	Oak savannas preferred
	Northern mockingbird	Shrubby habitat in savanna or woodland edge
	Loggerhead shrike	Thorny shrubs/trees in savanna/grasslands
	Bell's vireo	Thickets in savanna/grasslands
	Lark sparrow	Sandy grassland/savanna areas
	Eastern meadowlark	Prefers savanna over open grasslands
Mammals		
	Franklin's ground squirrel	
	Spotted skunk	
	Short-tailed shrew	
	Least shrew	Riparian areas
Reptiles and Amphibians		
	Six-lined racerunner	Sandy soil
	Slender glass lizard	Sandy or loose soil
	Ornate box turtle	Sandy soil
	Smooth green snake	Oak savanna
	Speckled kingsnake	Oak savanna
	Prairie kingsnake	Oak savanna
	Bullsnake	Oak savanna
Butterflies		
	Dreamy duskywing	
	Olympia marble	

Table 15-9. Habitat Preferences of SGCN - Agricultural Lands Habitat

Group	Common Name	Comments
Birds		
	Northern pintail	Nests in grassland
	Northern harrier	Prefers large grassland tracts +100 acres
	Greater prairie chicken	Prefers large grassland tracts +2,000 acres
	Sharp-tailed grouse	Open prairie w/patches of trees or shrubs
	Northern bobwhite	Prefers medium height grasslands w/shrubs & forbs
	Yellow rail	Wet meadows & fens w/sedges
	Whooping crane	Prefers large wetland complexes w/grasslands adjacent
	Sandhill crane	Prefers large wetland complexes w/grasslands adjacent
	Upland sandpiper	Prefers short-to-medium height grasslands w/forbs.
	Buff-breasted sandpiper	Short-grass areas near water
	Wilson’s phalarope	Shallow marshes w/upland grass & forbs
	Burrowing owl	Prefers short height grasslands
	Short-eared owl	Prefers large grassland tracts +200 acres
	Common nighthawk	Grasslands w/bare areas for nesting
	Sedge wren	Prefers tall grass infrequently disturbed
	Dickcissel	Prefers medium high grass w/sparse forbs
	Field sparrow	Prefers old grassland fields w/shrubs
	Lark sparrow	Prefers sand prairie w/sparse vegetation
	Grasshopper sparrow	Prefers short grass w/forbs
	Henslow's sparrow	Prefers tall grass and infrequent disturbance; weedy
	Le Conte's sparrow	Prefers grassy meadows ;marsh edges
	Nelson's sharp-tailed sparrow	Prefers rank grasslands on wetland edge
	Bobolink	Prefers medium height grass w/forbs
	Eastern meadowlark	Prefers trees in grass landscape
Mammals		
	White-tailed jackrabbit	
	Franklin's ground squirrel	
	Spotted skunk	

Group	Common Name	Comments
Reptiles and Amphibians		
	Crasfish frog	Flooded fields
	Great plains toad	Pasture
	Ornate box turtle	Pasture and agricultural fields with sandy soil
Group	**Common Name**	**Comments**
	Six-lined racerunner	Sandy soil
	Slender glass lizard	Pasture
	Prairie kingsnake	Hayfields and field edges
	Bullsnake	Hayfields and pasture
	Eastern massasauga rattlesnake	Grassed waterways, field edges
Butterflies		
	Peper and salt skipper	Grassy waterways
	Arogos skipper	
	Dusted skipper	Oldfields
	Pipevine swallowtail	Roadsides
	Wild indigo swallowtail	Roadsides
	Silvery blue	Fields adjacent to woodlands
	Leonard's skipper	Open grassy areas
	Purplish copper	Open fields
	Zabulon skipper	
	Acadian hairstreak	Often riparian
	Regal fritillary	Open grasslands

15-2. Aquatic Habitat Classes

Species utilization of aquatic habitat sub-classes as used in other sections of this Plan are combined under major Class headings to simplify the grouping process.

Table 15-10. Habitat Preferences of SGCN - River Habitat

Group	Common Name	Comments
Mammals		
	River Otter	Riparian habitats
Fish		
	Chestnut lamprey	
	Silver lamprey	
	American brook lamprey	
	Lake sturgeon	Sand, cobble and rock substrate
	Palid sturgeon	Turbid waters with sand and gravel substrate
	Shovelnose sturgeon	Turbid waters
	Paddlefish	
	Skipjack herring	Sand and gravel substrate
	Spotted gar	
	Brook trout	Cool waters
	Plains minnow	Silt bottom
	Speckled chub	Sand and silt substrate
	Sicklefin chub	Turbid water with sand and gravel substrate
	Gravel chub	Gravel substrate
	Pallid shiner	Sand and muck bottom
	Pugnose minnow	Clear vegetated waters with silt, sand and gravel substrate
	Ghost shiner	
	Blacknose shiner	Cool vegetated waters with sand bottom
	Spottail shiner	Sand and rock substrate
	Ozark minnow	Gravel and rock substrate
	Weed shiner	Sand substrate
	Topeka shiner	Clear waters
	Redfin shiner	
	Longnose dace	Clear waters with gravel and rock substrate
	Blue sucker	
	Black redhorse	Gravel and rock substrate
	River redhorse	No silt
	Greater redhorse	
	Spotted sucker	Firm substrate
	Blue catfish	
	Slender madtom	
	Tadpole madtom	Muck substrate
	Freckled madtom	
	Trout perch	Sand substrate
	Burbot	

Group	Common Name	Comments
	Slenderhead darter	Cobble, gravel and bedrock substrate
	Blackside darter	Sand and gravel substrate
	River darter	Gravel and rock substrate
	Northern logperch	Sand and gravel substrate
	Crystal darter	Sand and gravel substrate
	Western sand darter	Sand substrate
	Banded darter	Cobble and gravel substrate
	Bluntnose darter	Sand, muck substrate
	Mud darter	Sand and muck substrate
	Orangthroat darter	Sand, cobble, gravel and bedrock substrate
Reptiles and Amphibians		
	Mudpuppy	Clean rivers
	Cricket frog	Mud banks
	Wood turtle	With adjacent floodplain forest
	Alligator snapping turtle	Large rivers
Mussels		
	Flat floater	Mud and silt substrate
	Rock pocketbook	Mud and sand substrate
	Spectacle case	Mud and sand substrate
	Purple pimpleback	Gravel substrate
	Butterfly	Sand and gravel substrate
	Ebonyshell	Sand and gravel substrate
	Higgins' eye pearlymussel	Sand and gravel substrate
	Yellow sandshell	Sand and gravel substrate
	Slough sandshell	Mud substrate
	Fluted sandshell	Mud sand and gravel substrate
	Hickorynut	Sand and gravel substrate
	Bullhead	Sand and gravel substrate
	Round pigtoe	Firm sand and gravel substrate
	Monkeyface	Gravel substrate
	Wartyback	Sand and gravel substrate
	Lilliput	Mud, sand and gravel substrate
	Pistolgrip	Mud, sand and gravel substrate
	Fawnsfoot	Sand and gravel substrate
	Pond papershell	Mud substrate
Dragonflies and Damselflies		
	Stygian shadowdragon	
	Royal river cruiser	
	Smoky shadowdragon	

Table 15-11. Habitat Preferences of SGCN - Stream Habitat

Group	Common Name	Comments
Fish		
	Northern brook lamprey	
	American eel	
	Central mudminnow	
	Largescale stoneroller	Gravel substrate
	Plains minnow	
	Pugnose minnow	
	Southern redbelly dace	
	Brown bullhead	
	Slender madtom	
	Trout perch	
	Western banded killifish	
	Blackstripe topminnow	
	Mottled sculpin	
	Slimy sculpin	Rock substrate
	Northern logperch	
Reptiles and Amphibians		
	Mudpuppy	Permanent with gravel bottoms
	Cricket frog	Mud banks
	Common musk turtle	Slow moving, mud bottom
Dragonflies and Damselflies		
	Sand snaketail	
	Brimstone clubtail	
	Emma's dancer	
	Variable darner	
	Paiute dancer	
Mussels		
	Elktoe	Sand and gravel substrate
	Slippershell	Mud and sand substrate
	Spike	Firm sand and gravel substrate
	Creek heelsplitter	Sand and gravel substrate
	Round pigtoe	
	Strange floater	Mud, sand and gravel substrate
	Ellipse	Sand and gravel substrate

Table 15-12. Habitat Preferences of SGCN - Creek Habitat

Group	Common Name	Comments
Fish		
	American brook lamprey	
	Brook trout	
	Gravel chub	
	Ghost shiner	
	Blacknose shiner	
	Ozark minnow	
	Weed shiner	
	Topeka shiner	
	Redfin shiner	
	Southern redbelly dace	
	Black redhorse	
	River redhorse	
	Tadpole madtom	
	Freckled madtom	
	Mottled sculpin	
	Slenderhead darter	
	Blackside darter	
	Northern logperch	
	Banded darter	
	Bluntnose darter	
	Orangthroat darter	
	Least darter	
Reptiles and Amphibians		
	Cricket frog	Mud banks
Dragonflies and Damselflies		
	Rapids clubtail	
	Rusty snaketail	
	Cyrano darner	
Mussels		
	Slippershell	
	Clylinder	Mud and sand substrate
	Creek heelsplitter	
	Pondmussel	
	Lilliput	

Table 15-13. Habitat Preferences of SGCN - Impoundment Habitat

Group	Common Name	Comments
Fish		
	Silver lamprey	
	Paddlefish	
	Longnose gar	
	Skipjack herring	
	Black buffalo	
	Brown bullhead	
	Tadpole madtom	
	Northern logperch	
	Pugnose shiner	
Reptiles and Amphibians		
	Mudpuppy	With gravel bars for reproduction
Mussels		
	Paper pondshell	

Table 15-14. Habitat Preferences of SGCN - Backwater Habitat

Group	Common Name	Comments
Fish		
	Paddlefish	
	Bowfin	
	Longnose gar	
	Goldeye	
	Grass pickerel	
	Central mudminnow	
	Western silvery minnow	
	Mississippi silvery minnow	
	Topeka shiner	
	Black buffalo	
	Blue catfish	
	Brown bullhead	
	Tadpole madtom	
	Pirate perch	
	Blackstripe topminnow	
	Bluntnose darter	
	Mud darter	
Reptiles and Amphibians		
	Cricket frog	Mud flats
	Yellow mud turtle	Adjacent to soils of nearly pure sand
	Common musk turtle	Mud bottom
	Blanding's turtle	Vegetated with open canopy
	Yellowbelly water snake	Quiet pools
	Copperbelly water snake	Quiet pools
	Diamondback water snake	With abundant basking sites
Mussels		
	Slough sandshell	
Dragonflies and Damselflies		
	Slaty skimmer	
	Blue-faced meadowhawk	
	Cyrano darner	

Table 15-15. Habitat Preferences of SGCN - Lake Habitat (includes natural and man-made, shallow and deep water sub-classifications).

Group	Common Name	Comments
Fish		
	Silver lamprey	
	Lake sturgeon	
	Bowfin	
	Longnose gar	
	American eel	
	Goldeye	
	Grass pickerel	
	Pugnose shiner	
	Blacknose shiner	
	Spottail shiner	
	Pearl dace	
	Brown bullhead	
	Tadpole madtom	
	Pirate perch	
	Burbot	
	Western banded killifish	
	Northern logperch	
Reptiles and Amphibians		
	Mudpuppy	With gravel bars for reproduction
	Cricket frog	Mud banks
Dragonflies and Damselflies		
	Spangeled skimmer	
	Sulphur-tipped clubtail	
	Variable darner	
	Blue-eyed darner	
	Royal river cruiser	
	Cyrano darner	
	Prairie bluet	
	Vesper bluet	
Mussels		
	Flat floater	
	Spike	
	Lilliput	
	Paper pondshell	

Table 15-16. Habitat Preferences of SGCN - Pond Habitat

Group	Common Name	Comments
Fish		
	Grass pickerel	
	Pearl dace	
	Brown bullhead	
	Pirate perch	
	Western banded killifish	
Reptiles and Amphibians		
	Cricket frog	Mud banks
	Crawfish frog	With abundant crayfish
	Blanding's turtle	Limited use in Iowa
	Common musk turtle	Spring fed ponds
Dragonflies and Damselflies		
	Spangled skimmer	
	Mocha emerald	
	Alkali bluet	
	Elegant spreadwing	
	Sulphur-tipped clubtail	
	Canada darner	
	Variable darner	
	Blue-eyed darner	
	Green-striped darner	
	Four-spotted skimmer	
	Prairie bluet	
	Vesper bluet	
	Spotted spreadwing	
	Sweetflag spreadwing	
Mussels		
	Flat floater	
	Pondmussel	
	Lilliput	
	Paper pondshell	

APPENDIX 16. Regional Stress Analysis Tables
Terrestrial Habitats

16-1. Terrestrial Habitat Stresses by Region - General Habitat Stresses

Stress Key:
1 = Conversion to row crops
2 = Conversion to non-native grasses
3. = Conversion for residential use
4. = Conversion for non-farming industrial use
5. = Excessive recreational use damage
6. = Improper grazing
7. = Fire suppression
8. = Fire use
9. = Road construction
10. = Timber harvest
11. = Invasion of non-native species
12. = Pesticide/herbicide use
13. = Drainage
14. = Flooding caused by dams
15. = Disease/pathogens/insect
16. = Fragmentation
17. = Loss of connectivity
18. = Climate change
19. = Absence of habitat

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 16-1. Loess Hills - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.50	1.00	1.50	1.50	1.00	2.20	2.00	2.50	1.00
2	2.00	1.00	1.50	2.00	.	2.00	.	2.00	1.50
3	2.20	1.00	2.33	2.33	1.00	2.75	2.00	2.33	1.75
4	1.50	1.00	1.50	1.00	1.00	2.00	1.00	2.00	1.00
5	1.33	1.00	1.67	1.33	1.00	2.33	1.00	2.00	1.00
6	2.00	1.00	2.33	2.00	1.00	2.50	2.00	2.25	2.33
7	2.50	1.00	2.50	1.50	1.00	2.75	1.00	2.67	1.50
8	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
9	1.50	1.00	1.50	1.50	1.00	1.50	1.00	1.33	1.33
10	1.00	.	1.00	1.00	1.00	1.50	1.00	1.50	1.00
11	2.50	1.00	2.50	1.50	1.00	1.50	2.00	2.00	1.50
12	2.33	1.00	2.33	1.67	1.00	2.25	2.00	1.50	2.00
13	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.67
14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
16	2.60	1.00	2.50	2.00	1.00	2.00	2.00	2.00	1.00
17	2.00	1.00	2.00	2.00	1.00	2.75	1.00	3.00	1.00
18	.	.	.	3.00	.	3.00	3.00	.	1.00
19	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MEAN	1.78	1.00	1.73	1.54	1.00	1.90	1.50	1.78	1.29

Table 16-2. Mississippi Alluvial Plain - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.40	1.40	1.50	1.75	1.00	2.40	2.25	1.50	1.00
2	1.20	1.20	1.40	1.50	1.25	1.80	2.25	1.50	2.00
3	2.00	1.20	2.20	1.50	1.00	1.80	1.25	2.50	2.00
4	1.80	1.40	1.60	1.50	1.00	2.00	1.25	1.75	1.67
5	1.40	1.20	1.60	1.25	1.25	1.80	1.75	1.75	1.25
6	2.40	2.20	2.20	2.00	1.75	2.00	2.25	2.50	2.00
7	1.60	1.40	2.00	1.50	1.50	2.00	2.00	2.25	1.00
8	1.40	1.20	1.20	1.25	1.00	1.40	1.50	1.75	1.50
9	1.60	1.60	1.80	1.50	1.25	1.40	1.25	1.50	2.00
10	1.80	1.80	2.00	1.33	1.25	1.00	1.33	1.67	1.33
11	1.80	1.80	2.00	1.67	1.67	1.75	2.33	1.75	1.00
12	1.60	1.80	1.25	1.25	1.25	1.80	1.75	2.00	2.00
13	1.00	1.75	1.25	1.00	2.00	1.20	2.33	1.50	2.00
14	1.80	1.80	1.75	1.75	2.00	1.40	2.00	1.33	1.50
15	2.00	1.80	2.25	1.50	1.25	1.20	1.50	1.67	1.50
16	2.60	2.40	2.75	2.00	1.75	1.80	1.75	2.50	1.00
17	2.40	2.20	2.50	2.25	2.25	2.20	2.67	2.25	2.00
18	2.00	1.80	1.33	1.33	1.25	1.25	2.00	1.25	1.50
19	1.67	1.67	2.00	2.50	2.50	2.33	2.50	2.33	1.00

Table 16-3. Missouri Alluvial Plain - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.50	2.50	2.50	3.00	2.50	.	3.00	.	.
2	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	1.00
4	.	.	.	.	.	.	.	.	1.00
5	.	1.00	1.00	2.00	1.00	.	1.00	.	.
6	.	.	.	.	.	.	.	.	.
7	.	.	2.00	.	.	.	1.00	.	.
8	1.00	.	.	.	.	.	.	.	.
9	.	1.00	1.00	1.00	1.00	.	1.00	.	.
10	1.00	2.00	1.50	.	.	.	.	.	.
11	2.00	1.50	1.00	1.00	1.50	.	2.00	.	.
12	.	2.00	2.00	2.00	2.00	.	2.00	.	2.00
13	.	3.00	3.00	3.00	3.00	.	2.33	.	.
14	.	1.00	1.00	1.00	1.00	.	1.00	.	.
15	.	1.00	1.00	1.00	1.00	.	2.00	.	.
16	2.00	3.00	2.50	3.00	3.00	.	3.00	.	.
17	3.00	3.00	3.00	3.00	3.00	.	2.67	.	.
18	.	.	.	.	.	.	.	.	.
19	3.00	3.00	.	.	3.00	.	3.00	.	.

Table 16-4. Prairie Hardwood Transition - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.67	1.67	2.67	2.33	1.00	3.00	1.50	1.33	.
2	1.33	1.00	1.33	2.33	1.00	2.50	2.00	1.67	3.00
3	3.00	1.00	3.00	2.33	1.00	1.50	1.00	2.00	2.00
4	1.50	1.00	1.50	1.50	1.00	1.50	1.00	1.50	1.00
5	1.33	1.50	1.67	1.50	1.50	1.50	1.67	1.50	1.00
6	3.00	2.00	3.00	2.00	1.67	2.33	2.00	2.00	1.00
7	2.50	1.00	1.50	2.00	1.00	2.50	2.00	2.67	1.00
8	1.50	1.00	1.00	1.50	1.00	1.00	1.00	1.00	1.00
9	1.67	1.50	1.67	1.50	1.00	1.50	1.00	1.67	1.00
10	2.33	1.67	2.33	1.00	3.00	1.00	1.00	1.67	.
11	2.33	2.50	2.33	2.50	2.33	2.50	2.00	1.50	1.00
12	2.00	1.50	1.50	1.50	1.50	2.00	2.00	1.00	3.00
13	1.00	1.33	1.50	1.00	1.67	1.00	2.67	1.00	3.00
14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15	3.00	2.50	3.00	1.67	2.00	1.00	1.00	2.00	3.00
16	3.00	2.00	3.00	1.67	1.67	2.00	2.00	2.33	1.00
17	2.67	1.67	2.67	2.00	1.67	2.50	1.67	2.33	1.00
18	.	.	.	.	.	.	.	.	.
19	2.00	2.00	2.00	3.00	3.00	3.00	2.00	3.00	1.00

Table 16-5. Prairie Pothole - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.22	1.33	1.50	1.60	1.89	2.42	2.83	1.78	2.00
2	1.22	1.00	1.20	1.44	1.43	2.17	1.64	1.78	1.22
3	2.55	1.22	2.46	1.92	1.44	2.00	1.30	2.20	1.55
4	1.50	1.33	1.67	1.45	1.33	1.42	1.55	1.70	1.45
5	1.78	1.44	1.55	1.40	1.00	1.27	1.50	1.44	1.00
6	2.56	2.33	2.25	2.10	1.50	2.36	2.00	2.89	2.00
7	1.33	1.29	1.38	1.50	1.43	2.67	1.40	2.67	1.00
8	1.00	1.00	1.11	1.33	1.29	1.30	1.00	1.13	1.00
9	1.22	1.00	1.18	1.10	1.13	1.18	1.20	1.33	1.44
10	1.44	1.56	1.60	1.43	1.00	1.00	1.25	1.50	1.00
11	2.22	2.00	1.82	1.67	1.57	2.44	2.40	2.50	1.89
12	1.11	1.00	1.30	1.22	1.44	2.25	2.17	2.00	2.50
13	1.00	1.63	1.13	1.13	1.50	1.40	2.67	1.25	2.30
14	1.22	1.13	1.22	1.11	1.56	1.33	1.55	1.25	1.10
15	1.90	1.88	1.78	1.89	1.57	1.44	1.22	1.75	2.00
16	2.60	2.70	2.64	2.50	2.63	2.92	2.60	2.78	1.43
17	2.78	2.56	2.64	2.60	2.88	2.92	2.82	2.78	1.14
18	1.29	1.50	1.33	1.38	1.50	1.67	1.78	1.71	1.33
19	2.29	2.00	2.33	2.00	2.00	3.00	3.00	2.50	2.50

Table 16-6. Tallgrass Prairie Southern Iowa - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.07	1.91	2.23	2.55	1.88	2.58	2.25	2.44	2.50
2	1.73	1.64	1.91	2.18	1.67	2.23	2.09	2.11	2.29
3	2.62	1.22	2.67	2.00	1.14	1.92	1.33	2.50	1.63
4	1.75	1.40	1.58	1.50	1.29	1.73	1.40	1.88	1.75
5	1.75	1.73	1.60	1.44	1.14	1.67	1.60	1.71	1.00
6	2.50	2.42	2.63	2.50	2.33	2.47	2.08	2.75	2.29
7	2.17	2.00	2.42	2.27	1.63	2.86	1.89	2.91	1.83
8	1.20	1.14	1.13	1.14	1.00	1.11	1.00	1.00	1.50
9	1.46	1.22	1.36	1.30	1.00	1.27	1.11	1.13	1.29
10	2.00	2.23	1.86	1.11	1.14	1.00	1.00	1.89	1.20
11	2.38	2.60	2.50	2.11	2.22	2.07	2.42	2.43	2.00
12	1.45	1.50	1.45	1.64	1.63	1.87	1.92	1.88	2.67
13	1.00	1.90	1.00	1.00	2.56	1.30	2.50	1.17	2.33
14	1.27	1.38	1.30	1.22	1.43	1.11	1.56	1.00	1.00
15	2.27	1.88	2.11	1.57	1.83	1.29	1.63	2.00	1.83
16	2.57	2.42	2.45	2.27	1.75	2.50	2.38	2.38	1.60
17	2.54	2.22	2.58	2.22	2.00	2.33	2.50	2.25	1.60
18	1.67	2.00	1.67	1.60	2.20	1.57	2.14	1.80	1.25
19	2.25	2.50	2.50	3.00	3.00	2.50	2.83	3.00	1.00

Table 16-7. Tallgrass Prairie Iowan Surface- General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.67	2.00	2.67	2.50	1.33	3.00	2.25	2.50	.
2	1.67	1.67	2.00	2.00	2.00	1.67	2.33	2.00	1.67
3	3.00	1.67	3.00	1.50	1.00	2.00	1.00	2.67	2.33
4	1.67	1.67	1.67	1.50	1.50	1.67	1.67	1.50	2.00
5	2.33	2.00	2.00	1.50	1.00	1.67	1.00	2.00	1.00
6	2.25	2.00	2.25	2.50	2.50	2.75	2.00	3.00	1.67
7	2.50	2.33	2.25	2.50	2.67	2.75	2.00	2.67	1.00
8	1.50	1.50	1.50	1.00	1.00	1.00	1.00	1.00	1.00
9	2.00	1.33	1.67	1.00	1.00	1.33	1.33	1.00	1.00
10	2.25	2.50	2.00	1.50	1.00	1.33	1.00	1.50	1.00
11	2.33	2.00	2.25	2.00	2.00	2.25	2.50	1.50	1.25
12	1.00	1.00	1.00	1.00	1.50	1.75	2.00	1.50	2.00
13	1.00	2.00	1.00	1.00	2.33	1.00	3.00	1.00	1.33
14	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.00	1.00
15	2.00	1.50	2.00	1.00	1.50	1.00	1.00	1.00	1.67
16	3.00	2.50	3.00	3.00	3.00	3.00	2.67	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.00	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00
19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00

Table 16-8. Tallgrass Prairie Northwest Iowa Plains - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.50	1.50	1.50	1.50	2.00	3.00	3.00	3.00	3.00
2	1.00	1.00	1.00	1.00	.	2.50	1.50	1.00	2.00
3	2.50	1.00	2.50	2.00	.	2.00	1.00	3.00	1.50
4	1.50	2.00	2.00	2.00	3.00	1.00	2.00	1.00	1.00
5	2.50	2.00	2.00	2.00	2.00	1.50	1.50	1.00	1.00
6	3.00	3.00	3.00	3.00	3.00	2.50	1.50	2.00	3.00
7	1.00	2.00	2.00	2.00	3.00	2.50	1.50	2.00	1.00
8	1.00	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00
9	1.00	1.00	1.00	1.00	1.00	1.50	1.50	1.00	1.00
10	2.00	1.50	1.50	1.50	1.00	1.00	2.00	.	1.00
11	2.50	2.00	2.00	2.00	2.00	2.00	3.00	1.00	1.00
12	1.00	2.00	2.00	2.00	3.00	2.00	1.50	1.00	2.00
13	1.00	1.00	1.00	1.00	1.00	1.50	2.50	2.00	1.00
14	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00
15	3.00	1.50	2.00	2.00	1.00	1.00	1.00	.	1.00
16	2.50	2.00	2.00	2.00	.	3.00	3.00	.	2.00
17	2.50	2.50	2.50	2.50	3.00	3.00	2.00	2.00	2.00
18	1.00	2.00	2.00	2.00	3.00	2.00	1.00	2.00	1.00
19	3.00	2.00	2.00	2.00	1.00	2.00	2.00	1.00	3.00

16-2. Terrestrial Stresses by Region - Birds

Stress Key:
1 = Conversion to row crops
2 = Conversion to non-native grasses
3. = Conversion for residential use
4. = Conversion for non-farming industrial use
5. = Excessive recreational use damage
6. = Improper grazing
7. = Fire suppression
8. = Fire use
9. = Road construction
10. = Timber harvest
11. = Invasion of non-native species
12. = Pesticide/herbicide use
13. = Drainage
14. = Flooding caused by dams
15. = Disease/pathogens/insect
16. = Fragmentation
17. = Loss of connectivity
18. = Climate change
19. = Absence of habitat

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 16-9. Loess Hills -Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.00	1.00	2.00	2.00	2.00	3.00	2.00	3.00	1.00
2	1.00	1.50	2.50	2.50	2.00	3.00	2.50	3.00	1.00
3	2.00	1.50	2.00	2.00	1.00	2.00	1.00	1.50	1.00
4	1.00	1.00	2.00	2.00	1.00	2.00	1.00	1.50	1.00
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00
6	2.00	2.00	3.00	2.50	2.00	3.00	2.00	3.00	3.00
7	2.00	1.50	3.00	2.00	1.50	3.00	1.00	2.00	1.00
8	1.50	1.00	2.00	3.00	1.00	1.00	1.00	1.00	.
9	2.00	1.00	2.00	2.00	1.00	2.00	1.00	1.50	1.00
10	1.50	1.00	2.00	1.00	1.00	1.00	1.00	1.50	.
11	1.50	2.50	3.00	2.50	3.00	3.00	3.00	2.50	3.00
12	1.00	1.50	1.00	1.50	1.50	3.00	2.50	3.00	3.00
13	1.00	3.00	1.00	1.00	3.00	1.00	3.00	1.00	.
14	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	.
15	1.50	2.00	2.00	1.50	1.00	1.50	1.50	2.00	1.00
16	2.00	3.00	3.00	2.50	2.50	3.00	3.00	2.00	2.00
17	2.00	3.00	3.00	2.50	2.50	3.00	3.00	2.00	2.00
18	2.00	2.00	2.00	2.00	2.50	2.00	2.00	1.50	1.00
19	1.00	2.00	2.00	2.00	3.00	3.00	3.00	3.00	1.00

Table 16-10. Mississippi Alluvial Plain - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	2.50	3.00	3.00	2.50	3.00	2.00	2.50	3.00
2	1.50	1.50	2.50	2.50	2.00	3.00	2.50	3.00	3.00
3	2.00	1.00	3.00	2.00	1.00	3.00	1.00	3.00	2.00
4	1.50	1.50	2.50	2.00	1.00	2.50	1.00	2.50	2.00
5	2.50	2.00	2.50	2.00	1.50	2.00	1.50	2.50	1.00
6	2.00	2.50	3.00	3.00	2.00	2.50	2.00	3.00	3.00
7	1.50	1.00	3.00	2.50	1.00	3.00	1.00	3.00	1.00
8	1.00	1.00	3.00	3.00	1.00	1.00	1.00	2.00	1.00
9	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	1.50
10	3.00	2.50	3.00	1.00	1.00	1.00	1.00	2.50	1.00
11	2.50	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
12	1.50	2.00	2.00	3.00	2.50	3.00	2.50	2.50	3.00
13	1.00	3.00	1.00	1.00	3.00	1.00	3.00	1.00	1.00
14	2.00	3.00	2.00	2.00	3.00	2.00	3.00	2.00	2.00
15	1.50	2.00	2.50	1.50	1.50	1.50	1.50	2.00	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
18	2.50	2.50	2.00	2.00	2.00	1.50	2.00	2.00	1.50
19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Table 16-11. Missouri Alluvial Plain - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	3.00	2.00	3.00	3.00	3.00	3.00	2.00	3.00
2	1.00	1.00	1.50	3.00	2.00	3.00	2.50	2.00	3.00
3	1.50	1.00	2.00	1.50	1.00	2.00	1.00	2.00	1.50
4	1.50	1.50	2.00	2.00	1.00	2.00	1.00	2.00	1.50
5	2.00	2.00	2.00	2.00	1.50	2.00	1.50	2.00	1.00
6	1.00	2.00	2.50	2.00	1.00	2.50	2.00	2.50	3.00
7	1.50	1.00	3.00	2.00	1.00	3.00	1.00	3.00	1.00
8	1.00	1.00	3.00	3.00	1.00	1.00	1.00	2.00	1.00
9	2.00	1.50	2.00	2.00	1.00	2.00	1.00	2.00	1.50
10	2.00	2.00	2.50	1.00	1.00	1.00	1.00	2.50	1.00
11	1.50	3.00	3.00	2.50	3.00	3.00	3.00	3.00	2.50
12	1.50	2.50	2.50	3.00	2.00	3.00	2.50	3.00	3.00
13	1.00	3.00	1.00	1.00	3.00	1.00	3.00	1.00	1.00
14	1.00	1.50	1.00	1.00	1.50	1.00	1.50	1.00	1.00
15	1.50	2.00	2.00	1.50	1.50	1.50	1.50	1.50	2.00
16	2.00	3.00	2.50	2.50	3.00	3.00	3.00	3.00	2.00
17	2.00	3.00	2.50	2.50	3.00	3.00	3.00	3.00	2.00
18	2.00	2.50	2.00	2.00	2.00	1.50	2.00	2.00	1.50
19	1.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00	1.00

Table 16-12. Prairie to Hardwood Transition - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.50	3.00	2.00	3.00	2.00	3.00	3.00
2	1.00	1.00	2.00	2.50	2.00	3.00	2.50	3.00	3.00
3	3.00	1.50	3.00	2.50	1.00	2.50	1.00	3.00	2.50
4	1.00	1.00	1.50	2.00	1.00	2.00	1.00	2.00	1.50
5	2.50	2.50	2.50	2.00	2.00	2.00	2.00	2.50	1.00
6	2.50	2.50	3.00	3.00	2.00	3.00	2.00	3.00	3.00
7	1.50	1.00	3.00	3.00	1.00	3.00	1.50	3.00	1.50
8	1.00	1.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00
9	2.00	1.50	2.00	2.00	1.50	2.00	1.00	2.00	1.50
10	3.00	3.00	3.00	1.00	1.00	1.00	1.00	2.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
12	1.50	2.00	2.00	3.00	3.00	3.00	2.50	3.00	3.00
13	1.00	3.00	1.00	1.00	3.00	1.00	3.00	1.00	1.00
14	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	2.00
15	3.00	3.00	3.00	2.00	2.00	2.00	1.50	2.50	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
18	2.50	2.50	2.00	2.00	2.50	2.00	2.00	2.00	1.50
19	3.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00

Table 16-13. Prairie Pothole - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.50	3.00	3.00	2.50	2.50	3.00
2	1.50	1.00	2.50	2.50	1.00	2.50	2.00	2.50	3.00
3	2.00	1.00	3.00	2.00	1.00	2.50	1.00	3.00	2.00
4	1.00	1.00	1.00	1.50	1.00	2.00	1.00	1.50	1.50
5	2.00	2.50	2.50	1.50	1.00	2.00	2.00	2.00	1.00
6	2.00	3.00	3.00	2.50	2.00	3.00	2.00	3.00	3.00
7	1.50	1.00	3.00	2.50	1.00	3.00	1.00	3.00	1.50
8	1.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00
9	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	1.50
10	2.00	2.00	2.50	1.00	1.00	1.00	1.00	2.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
12	1.50	1.50	2.00	3.00	2.50	3.00	2.00	3.00	3.00
13	1.00	3.00	1.00	1.00	2.50	2.00	3.00	2.00	3.00
14	1.00	2.00	1.00	1.00	2.00	2.00	1.50	1.00	1.00
15	1.50	2.00	1.50	1.50	2.00	1.50	1.50	1.50	2.00
16	2.50	3.00	3.00	3.00	3.00	3.00	2.50	3.00	2.00
17	2.50	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
18	2.50	2.50	2.00	1.50	2.00	2.00	2.00	2.00	1.50
19	2.00	3.00	2.00	3.00	3.00	2.00	3.00	3.00	1.00

Table 16-14. Tallgrass Prairie Southern Iowa Drift Plain - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.50	3.00	2.00	3.00	2.00	3.00	3.00
2	1.50	1.50	2.50	2.00	2.50	3.00	3.00	3.00	3.00
3	2.50	1.50	3.00	2.50	1.00	2.50	1.00	3.00	2.00
4	1.50	1.00	2.00	2.00	1.00	2.00	1.00	2.00	1.50
5	2.50	1.50	2.50	2.00	1.50	2.00	1.00	2.50	1.00
6	2.50	2.50	3.00	3.00	2.50	3.00	2.00	3.00	3.00
7	1.50	1.00	3.00	3.00	1.00	2.00	1.00	3.00	1.00
8	1.00	1.00	2.00	3.00	1.00	1.00	1.00	2.00	1.00
9	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	1.50
10	3.00	2.50	3.00	1.00	1.00	1.00	1.00	2.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
12	1.00	1.50	2.00	3.00	2.50	3.00	2.50	2.50	3.00
13	1.00	2.00	1.00	1.00	2.00	1.00	3.00	1.00	1.00
14	1.00	2.00	1.00	1.00	2.00	1.00	2.00	1.00	2.00
15	2.00	2.50	2.50	1.50	1.50	1.50	1.50	2.50	2.00
16	3.00	3.00	3.00	3.00	2.50	3.00	2.50	3.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
18	2.50	2.50	2.00	1.50	2.00	1.50	2.50	1.50	1.50
19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Table 16-15. Tallgrass Prairie Iowan Surface - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.50	2.50	3.00	3.00	2.50	2.50
2	1.00	1.00	2.00	2.00	2.00	3.00	3.00	2.50	3.00
3	3.00	1.00	3.00	2.50	1.00	2.50	1.00	3.00	2.00
4	1.50	1.00	1.50	2.00	1.00	2.00	1.00	2.00	1.50
5	2.50	2.50	2.50	2.00	1.50	2.00	2.00	2.00	1.00
6	2.50	2.50	3.00	3.00	2.00	3.00	2.50	3.00	2.00
7	1.50	1.00	3.00	2.50	1.00	3.00	1.00	3.00	1.50
8	1.00	1.00	1.00	3.00	1.00	1.00	1.00	2.00	1.00
9	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	1.50
10	2.50	2.00	2.50	1.00	1.00	1.00	1.00	2.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
12	1.50	1.50	2.00	3.00	2.50	3.00	3.00	3.00	3.00
13	1.00	2.50	1.00	1.00	2.50	1.00	3.00	1.00	3.00
14	1.00	2.00	1.00	1.00	2.00	1.00	1.50	1.00	2.00
15	1.50	2.00	1.50	1.50	2.00	1.50	1.50	1.50	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	2.50	3.00	3.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
18	2.50	2.50	2.00	1.50	2.00	2.00	2.00	1.50	1.50
19	2.00	3.00	3.00	3.00	3.00	2.00	3.00	3.00	1.00

Table 16-16. Tallgrass Prairie Northwest Iowa Plains - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.00	1.50	1.50	1.50	1.50	3.00	2.50	2.50	2.50
2	1.00	1.00	1.50	1.50	2.00	3.00	3.00	2.50	3.00
3	2.00	1.00	2.00	2.00	1.00	2.00	1.00	3.00	1.50
4	1.00	1.00	1.50	1.50	1.00	1.50	1.00	1.50	1.50
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00
6	1.50	2.50	2.50	2.00	1.50	3.00	2.50	3.00	3.00
7	1.00	1.00	3.00	2.00	1.00	3.00	1.00	3.00	1.00
8	1.00	1.00	1.00	3.00	1.00	3.00	1.00	3.00	1.00
9	2.00	1.00	2.00	2.00	1.50	2.00	1.00	2.00	1.50
10	1.00	1.50	2.50	1.00	1.00	1.00	1.00	2.50	1.00
11	1.50	2.50	2.50	2.00	1.50	3.00	2.50	3.00	2.50
12	1.00	1.50	2.00	2.50	2.50	3.00	2.50	3.00	3.00
13	1.00	2.00	1.00	1.00	3.00	2.00	3.00	1.00	1.00
14	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00
15	1.50	2.00	1.50	1.50	1.50	1.50	1.50	1.50	2.00
16	2.00	3.00	3.00	2.50	2.50	3.00	3.00	3.00	2.00
17	2.00	3.00	3.00	2.50	2.50	3.00	3.00	3.00	2.00
18	2.00	2.50	2.00	2.00	2.50	1.50	1.50	1.50	1.50
19	1.00	2.00	2.00	2.00	2.00	3.00	3.00	3.00	1.00

16-3 Terrestrial Stresses by Region - Mammals

Stress Key:

1 = Conversion to row crops
2 = Conversion to non-native grasses
3. = Conversion for residential use
4. = Conversion for non-farming industrial use
5. = Excessive recreational use damage
6. = Improper grazing
7. = Fire suppression
8. = Fire use
9. = Road construction
10. = Timber harvest
11. = Invasion of non-native species
12. = Pesticide/herbicide use
13. = Drainage
14. = Flooding caused by dams
15. = Disease/pathogens/insect
16. = Fragmentation
17. = Loss of connectivity
18. = Climate change
19. = Absence of habitat

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 16-17. Loess Hills - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.50	2.00	1.50	1.50	2.00	2.50	2.50	2.00	3.00
2	1.50	2.00	2.00	2.50	2.00	2.50	2.50	2.50	3.00
3	3.00	1.50	3.00	3.00	1.50	3.00	1.50	3.00	3.00
4	2.00	1.50	2.00	2.00	2.50	2.00	2.50	2.50	2.50
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	3.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	1.50	2.50	3.00	1.50	3.00	1.50	3.00	3.00
8	3.00	2.00	3.00	3.00	2.00	3.00	2.00	3.00	3.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	1.50	1.50	1.50	1.00	1.00	1.00	1.00	1.50	2.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.00	1.00	1.00	1.50	1.50	2.00	2.00	1.50	3.00
13	1.00	2.50	1.00	1.00	2.50	2.00	3.00	1.00	2.50
14	1.00	1.50	1.00	1.00	1.50	1.00	2.00	1.00	1.50
15	1.50	1.50	1.50	1.00	1.00	1.50	1.50	1.50	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	1.50	2.00	2.00	2.00	3.00	2.00	3.00	3.00	1.00

Table 16-18. Mississippi Alluvial Plain - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	3.00	2.50	2.50	2.00
2	1.50	1.50	1.50	1.50	1.50	2.50	2.00	2.50	2.50
3	2.00	1.50	3.00	2.50	1.50	3.00	1.50	3.00	2.50
4	3.00	2.00	3.00	2.50	2.00	3.00	2.50	3.00	2.00
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	1.00	1.00	1.50	2.50	1.00	3.00	1.00	3.00	2.00
8	1.00	1.00	1.00	2.00	1.00	3.00	1.00	3.00	2.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	3.00	2.50	3.00	1.00	1.00	1.00	1.00	2.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.50	1.50	1.50	2.00	1.50	2.00	2.00	2.00	3.00
13	2.00	2.50	2.00	2.00	2.50	3.00	3.00	2.00	3.00
14	2.00	2.50	2.00	2.00	2.50	3.00	2.50	2.00	2.00
15	2.00	1.50	2.00	1.50	1.50	2.00	1.50	2.00	1.50
16	2.50	2.50	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	2.50	2.50	2.50	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	2.00	2.00	2.50	2.00	3.00	2.50	2.50	3.00	1.00

Table 16-19. Missouri Alluvial Plain - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	3.00	2.50	2.50	2.00
2	1.50	1.50	1.50	1.50	1.50	2.50	2.50	2.00	2.50
3	1.50	1.00	2.50	2.50	1.00	2.50	1.00	2.50	2.00
4	2.50	2.00	2.50	2.50	2.00	2.50	2.50	2.50	2.00
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	3.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	2.00	2.50	3.00	2.00	3.00	2.00	3.00	2.00
8	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	1.50	1.50	1.50	1.00	1.00	1.00	1.00	1.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.50	1.50	1.50	2.00	2.00	2.00	2.00	1.50	3.00
13	3.00	2.50	3.00	3.00	2.50	3.00	3.00	3.00	3.00
14	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.50
15	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
16	2.00	2.00	2.50	3.00	3.00	3.00	3.00	3.00	1.00
17	2.50	2.50	2.50	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	2.00	2.00	2.50	2.50	3.00	2.50	2.50	3.00	1.00

Table 16-20. Prairie to Hardwood Transition - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.50	2.00	2.00	2.00	2.00	2.50	2.00	2.00	2.00
2	1.50	1.50	1.50	2.00	1.50	2.50	2.50	2.50	2.50
3	3.00	1.50	3.00	2.50	1.00	3.00	1.00	3.00	2.50
4	1.50	1.50	1.50	1.50	1.00	1.50	1.00	2.00	2.00
5	3.00	3.00	3.00	3.00	2.00	2.00	1.50	2.50	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	1.00	2.00	2.00	1.00	3.00	1.00	2.50	1.00
8	1.00	1.00	1.00	2.00	1.00	3.00	2.00	3.00	1.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	2.50	2.50	2.50	1.00	1.00	1.00	1.00	1.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.50	1.50	1.00	1.50	1.50	2.50	2.50	2.00	3.00
13	2.00	2.00	1.00	1.00	2.00	2.00	3.00	1.50	2.50
14	1.00	1.50	1.00	1.00	1.50	1.00	1.50	1.00	1.50
15	1.50	1.50	1.50	1.50	1.00	1.00	1.00	1.50	1.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	2.50	3.00	2.50	2.50	3.00	3.00	3.00	3.00	1.00

Table 16-21. Prairie Pothole - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	3.00	2.50	2.00	3.00	3.00	3.00	3.00
2	1.50	1.50	2.00	3.00	2.00	3.00	3.00	2.50	2.50
3	2.50	1.00	2.50	2.00	1.00	1.50	1.00	2.50	2.50
4	1.50	1.00	1.50	1.00	1.00	1.00	1.00	2.00	2.00
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	1.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
7	2.00	1.00	2.00	2.50	1.00	3.00	1.00	3.00	1.00
8	1.00	1.00	1.00	2.00	1.00	3.00	1.00	3.00	1.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	2.50	2.50	2.50	1.00	1.00	1.00	1.00	1.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
12	1.50	1.50	1.50	2.00	1.50	2.50	2.50	1.50	2.50
13	3.00	2.50	3.00	3.00	2.50	2.00	3.00	2.00	3.00
14	1.50	2.50	1.50	1.50	2.50	2.00	2.50	1.50	1.50
15	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.50	1.50
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00

Table 16-22. Tallgrass Prairie Southern Iowa Drift Plain - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	2.50	2.50	2.50	2.50
2	2.00	2.00	2.00	2.50	2.00	2.50	2.50	2.50	3.00
3	3.00	1.50	2.50	2.50	1.50	3.00	1.50	3.00	2.50
4	1.50	1.50	1.50	1.50	1.50	1.50	1.50	2.00	2.00
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
7	2.00	1.00	2.00	2.50	1.00	3.00	1.50	2.00	1.00
8	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00	1.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	3.00	2.50	3.00	1.00	1.00	1.00	1.00	2.00	2.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.00	1.00	1.00	1.50	1.00	2.00	1.50	1.00	2.50
13	1.00	2.00	1.00	1.00	2.00	2.00	3.00	1.00	2.50
14	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
15	2.00	1.50	2.00	1.50	1.50	1.50	1.50	1.50	1.50
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	2.50	3.00	2.50	2.50	3.00	3.00	3.00	3.00	1.00

Table 16-23. Tallgrass Prairie Iowan Surface - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	2.50	2.50	2.50	3.00
2	2.00	2.00	1.50	2.50	2.00	2.50	2.50	2.50	2.50
3	2.50	1.50	3.00	3.00	1.00	3.00	1.00	3.00	2.50
4	1.50	1.50	2.00	2.00	1.00	2.00	1.00	2.50	2.00
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
7	2.00	1.00	2.00	2.00	1.00	2.50	1.00	2.50	1.00
8	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	2.50	2.50	2.50	1.00	1.00	1.00	1.00	1.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	2.00	2.00	2.00	2.00	2.00	2.50	2.50	2.00	3.00
13	3.00	2.50	3.00	3.00	2.50	2.00	3.00	2.00	3.00
14	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
15	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	2.50	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00

Table 16-24. Tallgrass Prairie Northwest Iowa Plains - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	2.50	2.50	2.50	3.00
2	1.50	1.50	1.50	2.50	1.50	2.50	2.00	2.50	2.50
3	2.50	1.00	2.50	2.00	1.00	2.50	1.00	2.50	2.50
4	1.50	1.00	1.50	1.00	1.00	1.50	1.00	2.00	2.00
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
7	2.00	1.00	2.00	2.50	1.50	3.00	2.00	3.00	2.00
8	1.00	1.00	1.00	2.00	2.00	3.00	3.00	3.00	1.50
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	2.50	2.50	2.50	1.00	1.00	1.00	1.00	1.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	2.00	2.00	2.00	2.00	2.00	2.50	2.50	2.00	3.00
13	3.00	2.50	3.00	3.00	2.50	2.00	3.00	2.00	2.50
14	1.50	2.00	1.50	1.50	2.00	1.50	2.00	1.50	1.50
15	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00

16-4 Terrestrial Stresses by Region - Reptiles and Amphibians (Herps)

Stress Key:

1 = Conversion to row crops
2 = Conversion to non-native grasses
3. = Conversion for residential use
4. = Conversion for non-farming industrial use
5. = Excessive recreational use damage
6. = Improper grazing
7. = Fire suppression
8. = Fire use
9. = Road construction
10. = Timber harvest
11. = Invasion of non-native species
12. = Pesticide/herbicide use
13. = Drainage
14. = Flooding caused by dams
15. = Disease/pathogens/insect
16. = Fragmentation
17. = Loss of connectivity
18. = Climate change
19. = Absence of habitat

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 16-25. Loess Hills - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	.	.	3.00	.	.	3.00	3.00	3.00	.
2	.	.	.	.	.	1.00	1.00	.	.
3	.	.	3.00	.	.	3.00	3.00	3.00	2.00
4	.	.	1.00	.	.	1.00	1.00	1.00	1.00
5	.	.	.	.	.	.	.	.	.
6	.	.	1.00	.	.	1.00	1.00	1.00	1.00
7	.	.	.	.	.	3.00	3.00	3.00	.
8	.	.	1.00	.	.	2.00	2.00	2.00	2.00
9	.	.	3.00	.	.	3.00	3.00	3.00	3.00
10	.	.	1.00	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	.	.	3.00	.	.	3.00	3.00	3.00	3.00
13	.	.	.	.	.	.	3.00	.	3.00
14	.	.	.	.	.	.	.	.	.
15	.	.	1.00	.	.	1.00	1.00	1.00	1.00
16	.	.	3.00	.	.	3.00	3.00	3.00	3.00
17	.	.	3.00	.	.	3.00	3.00	2.00	2.00
18	.	.	1.00	.	.	1.00	1.00	1.00	1.00
19	.	.	3.00	.	.	3.00	3.00	3.00	3.00

Table 16-26. Mississippi and Missouri Alluvial Plains - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	.	3.00	.	.	3.00	3.00	3.00	.	.
2	.	.	.	.	.	1.00	1.00	.	.
3	.	3.00	.	.	.	3.00	3.00	.	2.00
4	.	.	.	.	.	1.00	1.00	.	1.00
5	.	.	.	.	.	.	.	.	.
6	.	1.00	.	.	1.00	1.00	1.00	.	1.00
7	.	.	.	.	.	3.00	3.00	.	.
8	.	1.00	.	.	2.00	2.00	2.00	.	2.00
9	.	3.00	.	.	3.00	3.00	3.00	.	3.00
10	.	1.00	.	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	.	3.00	.	.	3.00	3.00	3.00	.	3.00
13	.	3.00	.	.	3.00	.	3.00	.	3.00
14	.	1.00	.	.	1.00	.	1.00	.	.
15	.	1.00	.	.	1.00	1.00	1.00	.	1.00
16	.	3.00	.	.	3.00	3.00	3.00	.	3.00
17	.	3.00	.	.	3.00	3.00	3.00	.	2.00
18	.	1.00	.	.	1.00	1.00	1.00	.	1.00
19	.	3.00	.	.	3.00	3.00	3.00	.	3.00

Table 16-27. Prairie to Hardwood Transition - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	.	3.00	.	3.00	3.00	3.00	3.00	.
2	.	.	.	.	.	1.00	1.00	.	.
3	3.00	.	3.00	.	.	3.00	3.00	3.00	2.00
4	1.00	.	1.00	.	.	1.00	1.00	1.00	1.00
5	.	.	.	.	.	.	.	.	.
6	1.00	.	1.00	.	1.00	1.00	1.00	1.00	1.00
7	.	.	.	.	.	3.00	3.00	3.00	.
8	1.00	.	1.00	.	2.00	2.00	2.00	2.00	2.00
9	3.00	.	3.00	.	3.00	3.00	3.00	3.00	3.00
10	1.00	.	1.00	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	3.00	.	3.00	.	3.00	3.00	3.00	3.00	3.00
13	.	.	.	.	3.00	.	3.00	.	3.00
14	.	.	.	.	.	.	.	.	.
15	1.00	.	1.00	.	1.00	1.00	1.00	1.00	1.00
16	3.00	.	3.00	.	3.00	3.00	3.00	3.00	3.00
17	3.00	.	3.00	.	3.00	3.00	3.00	2.00	2.00
18	1.00	.	1.00	.	1.00	1.00	1.00	1.00	1.00
19	3.00	.	3.00	.	3.00	3.00	3.00	3.00	3.00

Table 16-28. Prairie Pothole - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	.	3.00	.	.	.	3.00	3.00	.	.
2	.	.	.	.	.	1.00	1.00	.	.
3	.	3.00	.	.	.	3.00	3.00	.	2.00
4	.	.	.	.	.	1.00	1.00	.	1.00
5	.	.	.	.	.	.	.	.	.
6	.	1.00	.	.	.	1.00	1.00	.	1.00
7	.	.	.	.	.	3.00	3.00	.	.
8	.	1.00	.	.	.	2.00	2.00	.	2.00
9	.	3.00	.	.	.	3.00	3.00	.	3.00
10	.	1.00	.	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	.	3.00	.	.	.	3.00	3.00	.	3.00
13	.	3.00	.	.	.	.	3.00	.	3.00
14	.	.	.	.	.	.	.	.	.
15	.	1.00	.	.	.	1.00	1.00	.	1.00
16	.	3.00	.	.	.	3.00	3.00	.	3.00
17	.	3.00	.	.	.	3.00	3.00	.	2.00
18	.	1.00	.	.	.	1.00	1.00	.	1.00
19	.	3.00	.	.	.	3.00	3.00	.	3.00

Table 16-29. Tallgrass Prairie Southern Iowa Drift Plain - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	.
2	.	.	.	.	.	1.00	1.00	.	.
3	3.00	3.00	3.00	.	.	3.00	3.00	3.00	2.00
4	1.00	.	1.00	.	.	1.00	1.00	1.00	1.00
5	.	.	.	.	.	.	.	.	.
6	1.00	1.00	1.00	.	1.00	1.00	1.00	1.00	1.00
7	.	.	.	.	.	3.00	3.00	3.00	.
8	1.00	1.00	1.00	.	2.00	2.00	2.00	2.00	2.00
9	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00
13	.	3.00	.	.	3.00	.	3.00	.	3.00
14	.	.	.	.	.	.	.	.	.
15	1.00	1.00	1.00	.	1.00	1.00	1.00	1.00	1.00
16	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00
17	3.00	3.00	3.00	.	3.00	3.00	3.00	2.00	2.00
18	1.00	1.00	1.00	.	1.00	1.00	1.00	1.00	1.00
19	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00

Table 16-30. Tallgrass Prairie Iowan Surface - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	.
2	.	.	.	.	.	1.00	1.00	.	.
3	3.00	3.00	3.00	.	.	3.00	3.00	3.00	2.00
4	1.00	.	1.00	.	.	1.00	1.00	1.00	1.00
5	.	.	.	.	.	.	.	.	.
6	1.00	1.00	1.00	.	1.00	1.00	1.00	1.00	1.00
7	.	.	.	.	.	3.00	3.00	3.00	.
8	1.00	1.00	1.00	.	2.00	2.00	2.00	2.00	2.00
9	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00
13	.	3.00	.	.	3.00	.	3.00	.	3.00
14	.	.	.	.	.	.	.	.	.
15	1.00	1.00	1.00	.	1.00	1.00	1.00	1.00	1.00
16	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00
17	3.00	3.00	3.00	.	3.00	3.00	3.00	2.00	2.00
18	1.00	1.00	1.00	.	1.00	1.00	1.00	1.00	1.00
19	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00

Table 16-31. Tallgrass Prairie Northwest Iowa Plains - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	.	.	3.00	.	.	3.00	3.00	.	.
2	.	.	.	.	.	1.00	1.00	.	.
3	.	.	3.00	.	.	3.00	3.00	.	2.00
4	.	.	1.00	.	.	1.00	1.00	.	1.00
5	.	.	.	.	.	.	.	.	.
6	.	.	1.00	.	.	1.00	1.00	.	1.00
7	.	.	.	.	.	3.00	3.00	.	.
8	.	.	1.00	.	.	2.00	2.00	.	2.00
9	.	.	3.00	.	.	3.00	3.00	.	3.00
10	.	.	1.00	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	.	.	3.00	.	.	3.00	3.00	.	3.00
13	.	.	.	.	.	.	3.00	.	3.00
14	.	.	.	.	.	.	.	.	.
15	.	.	1.00	.	.	1.00	1.00	.	1.00
16	.	.	3.00	.	.	.	3.00	.	3.00
17	.	.	3.00	.	.	3.00	3.00	.	2.00
18	.	.	1.00	.	.	1.00	1.00	.	1.00
19	.	.	3.00	.	.	3.00	3.00	.	3.00

16-5 Terrestrial Stresses by Region - Land Snails (Prairie to Hardwood Transition Region Only)

Stress Key:
1 = Conversion to row crops
2 = Conversion to non-native grasses
3. = Conversion for residential use
4. = Conversion for non-farming industrial use
5. = Excessive recreational use damage
6. = Improper grazing
7. = Fire suppression
8. = Fire use
9. = Road construction
10. = Timber harvest
11. = Invasion of non-native species
12. = Pesticide/herbicide use
13. = Drainage
14. = Flooding caused by dams
15. = Disease/pathogens/insect
16. = Fragmentation
17. = Loss of connectivity
18. = Climate change
19. = Absence of habitat

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 16-32. Prairie to Hardwood Transition - Land Snails

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.00	.	1.00	.	.	.	.	.	3.00
2	1.00	.	1.00	.	.	.	.	.	3.00
3	1.50	.	2.00	.	.	.	.	.	3.00
4	1.00	.	1.00	.	.	.	.	.	1.50
5	3.00	.	3.00	.	.	.	.	.	3.00
6	3.00	.	3.00	.	.	.	.	.	3.00
7	1.50	.	1.00	.	.	.	.	.	1.50
8	1.00	.	1.00	.	.	.	.	.	1.00
9	2.00	.	2.00	.	.	.	.	.	3.00
10	1.50	.	2.00	.	.	.	.	.	2.00
11	2.50	.	3.00	.	.	.	.	.	3.00
12	1.50	.	1.00	.	.	.	.	.	3.00
13	2.00	.	3.00	.	.	.	.	.	1.50
14	1.50	.	1.00	.	.	.	.	.	2.00
15	1.00	.	1.00	.	.	.	.	.	2.00
16	3.00	.	3.00	.	.	.	.	.	3.00
17	3.00	.	3.00	.	.	.	.	.	3.00
18	3.00	.	3.00	.	.	.	.	.	3.00
19	2.50	.	3.00	.	.	.	.	.	3.00
20*	3.00	.	3.00	.	.	.	.	.	3.00
21*	2.00	.	2.00	.	.	.	.	.	3.00

*Stress 20 - damage to sinkholes through siltation, Stress 21 - damage to sinkholes through contaminants

16-6. Terrestrial Stresses by Region - Butterflies

Stress Key:
1 = Conversion to row crops
2 = Conversion to non-native grasses
3. = Conversion for residential use
4. = Conversion for non-farming industrial use
5. = Excessive recreational use
6. = Improper grazing
7. = Fire suppression
8. = Fire use
9. = Road construction
10. = Timber harvest
11. = Invasion of non-native species
12. = Pesticide/herbicide use
13. = Drainage
14. = Flooding caused by dams
15. = Disease/pathogens/insect damage
16. = Fragmentation
17. = Loss of connectivity
18. = Climate change
19. = Absence of habitat

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 16-33. Loess Hills - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	2.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	3.00	1.00	3.00	3.00	1.00	3.00	1.00	3.00	3.00
4	2.00	1.00	2.00	2.00	1.00	1.50	1.00	2.00	1.50
5	3.00	2.00	3.00	3.00	2.00	2.00	2.00	3.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	1.00	2.00	2.00	2.00	3.00	2.00	3.00	2.50
8	2.00	1.00	2.00	2.00	2.00	3.00	2.00	3.00	2.00
9	2.00	2.00	2.00	2.00	2.00	1.50	2.00	2.00	1.50
10	2.00	1.00	2.00	1.00	1.00	1.00	1.00	2.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	2.00	2.00	2.00	2.00	2.00	3.00	3.00	3.00	3.00
13	1.00	2.00	1.00	1.00	2.00	1.00	2.00	1.00	1.50
14	1.00	2.00	1.00	1.00	2.00	1.50	2.00	1.00	1.00
15	1.00	1.00	1.00	1.00	1.00	1.50	1.00	1.00	1.50
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	2.00	3.00	2.00	1.00	3.00	3.00	3.00	3.00	2.00

Table 16-34. Mississippi Alluvial Plain - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	2.00	1.00	2.00	2.00	1.00	2.00	2.00	2.00	2.00
4	2.00	1.00	2.00	2.00	1.00	2.00	2.00	2.00	2.00
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	1.00	1.00	1.00	2.00	1.00	3.00	1.00	3.00	1.00
8	2.00	2.00	2.00	2.00	2.00	3.00	2.00	2.00	2.00
9	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
10	3.00	3.00	3.00	1.00	1.00	1.00	1.00	2.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.00	1.00	1.00	2.00	2.00	3.00	3.00	3.00	3.00
13	2.00	3.00	2.00	2.00	3.00	3.00	3.00	2.00	2.00
14	2.00	2.00	2.00	2.00	2.00	2.00	3.00	2.00	2.00
15	3.00	3.00	3.00	2.00	2.00	2.00	2.00	2.00	2.00
16	3.00	3.00	3.00	3.00	1.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	1.00	3.00	3.00	3.00	1.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	2.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00	1.00

Table 16-35. Missouri Alluvial Plain - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
3	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
4	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	2.00
5	3.00	2.00	3.00	2.00	2.00	2.00	2.00	3.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	1.00	2.00	2.00	1.00	3.00	2.00	3.00	2.00
8	2.00	1.00	2.00	3.00	1.00	3.00	2.00	3.00	2.00
9	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
10	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.00	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00
12	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
13	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00

Table 16-36. Prairie to Hardwood Transition - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00
2	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	2.00
3	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	2.00
4	1.00	1.00	1.00	2.00	1.00	2.00	1.00	2.00	1.00
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
8	2.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
9	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	2.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	3.00
13	1.00	2.00	1.00	2.00	3.00	1.00	3.00	1.00	1.00
14	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00
15	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	2.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	1.00

Table 16-37. Prairie Pothole - Butterflies

	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	1.00	1.00	1.00	2.00	1.00	2.00	2.00	2.00	2.00
3	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
4	1.00	2.00	2.00	2.00	1.00	1.50	1.00	1.00	1.00
5	3.00	2.00	3.00	2.00	2.00	1.50	2.00	2.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	1.00	1.00	1.00	2.00	1.00	3.00	2.00	3.00	1.00
8	1.00	1.00	2.00	2.00	1.00	3.00	2.00	3.00	1.00
9	2.00	2.00	2.00	2.00	2.00	2.50	2.00	2.00	2.00
10	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
13	3.00	3.00	3.00	3.00	3.00	2.00	3.00	2.00	2.00
14	2.00	3.00	2.00	2.00	3.00	2.00	3.00	2.00	2.00
15	2.00	2.00	2.00	1.00	1.00	1.50	1.00	2.00	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	2.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	1.00

Table 16-38. Tallgrass Prairie Southern Iowa Drift Plain - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
2	3.00	2.00	3.00	3.00	2.00	3.00	2.00	3.00	2.00
3	2.00	1.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00
4	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	2.00
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	2.00	2.00	3.00	2.00	3.00	2.00	3.00	3.00
8	2.00	2.00	2.00	2.00	1.00	2.00	1.00	2.00	2.00
9	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
10	3.00	2.00	3.00	1.00	1.00	1.00	1.00	3.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.00	1.00	1.00	3.00	2.00	3.00	3.00	3.00	3.00
13	1.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
14	2.00	3.00	2.00	2.00	3.00	2.00	3.00	2.00	2.00
15	3.00	3.00	3.00	2.00	2.00	2.00	2.00	3.00	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	2.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00	1.00

Table 16-39. Tallgrass Prairie Iowan Surface - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00
2	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	3.00
3	1.00	2.00	2.00	2.00	1.00	2.00	1.00	2.00	3.00
4	1.00	2.00	2.00	2.00	1.00	2.00	1.00	2.00	3.00
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	3.00
8	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
9	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
10	2.00	2.00	2.00	1.00	1.00	1.00	1.00	2.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	3.00
13	1.00	3.00	1.00	2.00	3.00	3.00	3.00	2.00	3.00
14	1.00	2.00	1.00	1.00	3.00	2.00	3.00	1.00	2.00
15	2.00	2.00	2.00	2.00	1.00	2.00	2.00	2.00	3.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	2.00	2.00	2.00	2.00	2.00	3.00	3.00	3.00	1.00

Table 16-40. Tallgrass Prairie Northwest Iowa Plains - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	3.00	2.00	3.00	2.00	3.00	2.00
2	2.00	2.00	2.00	3.00	2.00	3.00	3.00	3.00	3.00
3	2.00	1.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00
4	2.00	1.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00
5	2.00	2.00	2.00	2.00	1.00	2.00	1.00	2.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	1.00	2.00	2.00	2.00	2.50	2.00	3.00	2.00
8	2.00	1.00	2.00	3.00	2.00	3.00	2.00	3.00	2.00
9	2.00	2.00	2.00	2.00	2.00	2.50	2.00	2.00	2.00
10	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.00	3.00	3.00	3.00	3.00	2.50	3.00	3.00	3.00
12	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	3.00
13	2.00	3.00	2.00	2.00	3.00	2.00	3.00	3.00	3.00
14	1.00	1.00	1.00	1.00	2.00	1.50	2.00	2.00	1.00
15	1.00	1.00	1.00	1.00	1.00	1.50	1.00	1.00	1.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	1.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00	1.00

APPENDIX 17. Aquatic Habitat Stresses by Region

17-1 Aquatic Stresses by Region - Fish and Mussels

Stress Key:

1. = Siltation
2. = Chemical pollution
3. = Accelerated eutrophication
4. = Channelization
5. = Man-made dams
6. = Permanent drainage
7. = Artificial water level manipulation
8. = Shoreline alteration
9. = Invasive/non-native species
10. = Disease/pathogens
11. = Excessive recreational use
12. = Climate change
13. = Loss of riparian habitat
14. = Loss of shoreline vegetation
15. = Loss of submergent/emergent plants
16. = Shoreline/bank erosion
17. = Streambed degradation

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 17-1. Loess Hills -Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.67
2	2.00	2.00	2.00	2.00	1.50	1.00	1.00	1.00	1.33
3	2.67	2.67	2.67	3.00	3.00	3.00	3.00	3.00	2.67
4	2.33	2.67	3.00	2.00	3.00	2.00	1.00	1.00	1.00
5	2.00	2.33	2.67	3.00	1.50	1.00	3.00	1.00	1.00
6	1.67	1.67	2.33	2.50	3.00	3.00	1.00	2.00	1.00
7	1.67	1.67	1.67	1.50	1.50	1.50	1.00	1.50	1.00
8	3.00	3.00	3.00	2.50	2.50	2.50	2.00	2.00	1.67
9	3.00	2.33	2.00	2.50	2.50	2.00	3.00	2.50	2.33
10	1.33	1.00	1.33	1.50	1.50	1.50	2.00	1.50	1.33
11	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.33
12	1.33	1.33	1.33	1.00	1.50	1.50	1.00	1.00	1.33
13	2.33	2.67	2.67	3.00	3.00	2.50	3.00	2.50	2.00
14	3.00	3.00	3.00	3.00	2.50	2.50	2.00	2.00	1.33
15	2.33	2.67	2.67	3.00	2.50	2.00	2.00	1.50	1.00
16	3.00	3.00	3.00	2.50	2.50	2.00	2.00	2.00	1.33
17	3.00	3.00	3.00	3.00	3.00	3.00	1.00	1.00	1.00

Table 17-2. Mississippi Alluvial Plain - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	2.67	.	.	.
2	2.00	2.00	2.00	2.50	2.00	2.00	.	.	.
3	2.50	2.50	2.50	3.00	2.50	2.50	.	.	.
4	2.33	2.67	2.67	3.00	.	.	.	.	.
5	2.33	3.00	2.67	3.00	.	.	.	.	.
6	1.50	2.50	3.00	3.00	1.00	2.00	.	.	.
7	3.00	2.00	2.00	3.00	3.00	3.00	.	.	.
8	2.33	2.33	2.33	3.00	2.00	2.50	.	.	.
9	3.00	3.00	2.67	3.00	3.00	3.00	.	.	.
10	1.33	1.33	1.33	2.00	1.33	1.33	.	.	.
11	1.33	1.33	1.00	2.50	1.67	1.33	.	.	.
12	1.00	1.00	1.00	2.00	1.00	1.00	.	.	.
13	2.00	2.33	2.33	2.50	2.00	1.67	.	.	.
14	1.00	1.50	1.50	2.00	1.33	1.33	.	.	.
15	2.50	2.00	2.00	3.00	2.33	2.00	.	.	.
16	2.00	2.33	2.67	3.00	1.50	2.00	.	.	.
17	2.00	2.33	2.33	3.00	1.00	1.00	.	.	.

Table 17-3. Missouri Alluvial Plain - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	2.50	2.00	2.00	2.00	2.00	1.50	1.00	1.50	1.50
3	2.00	2.00	2.00	2.50	3.00	3.00	3.00	3.00	3.00
4	3.00	3.00	3.00	2.00	3.00	2.00	1.00	1.00	1.00
5	1.50	2.00	2.00	1.50	2.00	1.50	3.00	1.50	1.50
6	2.00	2.00	2.50	2.50	3.00	3.00	1.00	1.50	1.00
7	3.00	3.00	3.00	2.50	3.00	3.00	1.00	1.50	1.00
8	3.00	3.00	3.00	3.00	2.50	3.00	2.00	2.00	1.50
9	3.00	2.50	2.50	2.00	2.50	2.50	3.00	2.50	1.50
10	2.00	1.50	1.50	1.50	1.50	1.50	2.00	1.50	1.50
11	1.50	1.00	1.00	1.00	1.00	1.00	2.00	1.50	1.50
12	1.00	1.00	1.00	1.00	1.50	1.50	1.00	1.00	1.00
13	3.00	3.00	3.00	2.50	2.50	2.50	3.00	2.00	2.00
14	3.00	3.00	3.00	2.50	2.50	2.50	2.00	1.50	1.50
15	3.00	3.00	3.00	3.00	3.00	3.00	2.00	1.50	1.00
16	3.00	3.00	3.00	3.00	2.50	2.00	2.00	2.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	1.00	1.00	1.00

Table 17-4. Prairie to Hardwood Transition - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.50	1.50
3	2.33	2.50	2.50	2.67	3.00	3.00	3.00	3.00	3.00
4	2.33	2.50	3.00	1.67	2.00	2.00	1.00	1.00	1.00
5	2.67	2.00	1.00	2.67	1.50	1.50	1.00	1.00	1.00
6	2.00	2.00	2.00	1.33	3.00	2.50	2.00	1.50	1.50
7	2.00	2.00	2.00	2.33	2.00	2.50	2.00	1.50	1.50
8	2.67	2.50	2.00	2.33	1.50	2.00	1.00	1.00	1.00
9	3.00	2.00	1.00	2.67	2.50	2.50	2.00	2.00	2.00
10	1.67	1.50	1.00	1.33	1.50	1.50	1.00	1.00	1.00
11	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	2.67	3.00	3.00	2.67	2.00	2.50	2.00	1.50	1.50
14	2.67	3.00	3.00	2.33	2.00	1.50	2.00	1.50	1.50
15	1.67	2.00	2.00	2.00	2.00	1.50	1.00	1.50	1.50
16	2.67	3.00	3.00	2.00	1.00	1.00	2.00	1.00	1.00
17	2.00	2.00	2.00	1.33	1.50	1.50	1.00	1.00	1.00

Table 17-5. Prairie Pothole - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	2.75	3.00	3.00	3.00	2.50	.	2.33	2.67	2.25
2	1.50	1.75	1.75	1.67	2.00	.	1.33	1.33	1.75
3	1.75	1.75	2.00	2.33	2.00	.	2.67	2.33	2.00
4	1.25	2.50	2.50	1.50	.	.	1.00	1.00	1.00
5	1.50	1.25	1.50	1.50	1.00	.	1.00	1.00	1.00
6	1.75	1.75	1.75	1.33	1.50	.	1.00	1.00	1.00
7	1.00	1.00	1.00	1.00	1.00	.	1.00	1.00	1.00
8	1.67	1.67	2.33	1.67	2.50	.	2.33	1.67	1.25
9	1.75	1.75	1.50	1.67	1.50	.	2.00	2.33	2.00
10	1.00	1.00	1.00	1.33	1.00	.	1.00	1.67	1.25
11	1.00	1.25	1.00	1.33	1.00	.	2.67	1.67	1.25
12	1.33	1.33	1.67	1.00	1.00	.	1.33	1.00	1.33
13	2.50	2.75	2.75	2.33	1.50	.	2.00	1.33	1.25
14	2.00	2.33	2.67	1.67	2.00	.	2.67	1.67	1.25
15	1.50	1.75	2.00	2.00	1.50	.	2.67	1.00	1.00
16	2.50	2.75	2.50	2.00	1.00	.	1.67	2.33	1.50
17	2.00	2.00	2.25	1.00	1.00	.	1.00	1.00	1.00

Table 17-6. Tallgrass Prairie Southern Iowa Drift Plain - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	2.57	2.67	2.50	3.00	2.67	3.00	3.00	2.75	2.67
2	1.71	1.83	1.83	1.67	2.00	2.00	1.00	1.25	1.67
3	2.14	2.33	2.33	2.67	3.00	3.00	3.00	2.50	2.33
4	1.86	2.67	2.67	1.50	3.00	2.50	1.00	1.00	1.00
5	1.57	1.67	1.83	2.25	2.00	1.50	3.00	1.00	1.00
6	1.71	1.67	1.83	1.40	3.00	3.00	1.00	1.00	1.00
7	1.83	1.40	1.40	1.67	2.33	2.75	1.00	1.00	1.00
8	2.50	2.40	2.40	2.17	2.33	2.25	2.00	2.00	1.83
9	2.43	2.17	2.00	2.50	3.00	2.75	3.00	2.50	1.83
10	1.29	1.17	1.17	1.33	1.67	1.50	2.00	1.25	1.17
11	1.00	1.00	1.00	1.17	1.00	1.00	2.00	1.50	1.17
12	1.17	1.20	1.20	1.00	1.33	1.25	1.00	1.00	1.20
13	2.00	2.67	2.83	2.00	2.33	2.00	3.00	1.75	1.67
14	2.17	2.40	2.40	2.00	2.33	1.75	2.00	1.75	1.67
15	1.86	1.83	1.67	2.50	2.33	2.00	2.00	1.50	1.33
16	2.43	2.67	2.83	2.33	2.00	1.50	2.00	2.25	1.83
17	2.14	2.50	2.33	2.00	2.50	2.00	1.00	1.00	1.00

Table 17-7. Tallgrass Prairie Iowan Surface - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	2.75	2.67	2.67	3.00	3.00	3.00	.	2.67	2.67
2	1.75	1.67	1.67	1.50	1.67	1.67	.	1.33	1.33
3	2.25	2.33	2.33	2.75	3.00	3.00	3.00	2.67	2.67
4	2.00	2.00	2.33	2.00	2.67	2.50	.	1.00	1.00
5	2.50	2.33	1.00	2.00	1.50	1.50	.	1.00	1.00
6	2.00	2.33	2.33	1.33	3.00	3.00	.	1.00	1.00
7	1.67	1.00	1.00	2.00	1.50	2.00	.	1.00	1.00
8	2.00	1.50	1.50	2.00	2.00	2.50	.	1.00	1.00
9	2.50	2.00	1.67	2.75	2.67	2.67	.	2.33	2.00
10	1.25	1.00	1.00	1.25	1.33	1.33	.	1.00	1.00
11	1.00	1.00	1.00	1.00	1.00	1.00	.	1.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	.	1.00	1.00
13	2.50	2.67	2.67	2.50	2.67	2.67	.	1.33	1.33
14	2.25	2.33	2.33	2.50	2.67	2.33	.	1.67	1.67
15	1.25	1.00	1.00	1.75	2.33	2.33	.	1.67	1.00
16	2.50	2.67	2.67	2.00	1.33	1.33	.	2.00	1.67
17	1.75	1.67	1.67	1.50	1.50	1.50	.	1.00	1.00

Table 17-8. Tallgrass Prairie Northwest Iowa - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	2.50	2.00	2.00	2.50	2.50	2.00	3.00	2.50	2.50
2	2.50	2.50	2.50	1.50	1.50	1.00	2.00	2.00	2.00
3	1.50	1.50	1.50	2.00	2.00	3.00	3.00	2.50	2.50
4	2.50	3.00	3.00	1.00	.	.	.	.	.
5	1.00	1.50	1.50	1.00	.	.	.	1.00	1.00
6	2.00	2.00	2.50	1.00	2.00	.	.	1.00	1.00
7	2.00	1.00	1.00	1.00	1.00	3.00	1.00	1.50	1.00
8	3.00	2.00	1.00	1.50	2.50	2.00	3.00	1.00	1.00
9	3.00	2.50	2.00	2.50	2.00	2.00	3.00	2.50	2.00
10	1.50	1.50	1.50	1.00	1.00	1.00	1.00	1.00	1.00
11	1.50	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00
12	1.50	1.50	2.00	1.50	1.00	1.00	1.00	1.50	1.50
13	2.50	3.00	3.00	1.50	2.50	3.00	3.00	2.00	1.00
14	3.00	3.00	2.00	1.00	2.00	2.00	3.00	1.50	1.00
15	1.50	2.00	1.50	1.50	2.00	2.00	3.00	1.50	1.00
16	3.00	3.00	2.50	2.00	1.50	2.00	2.00	2.00	1.50
17	2.50	1.50	2.00	1.00	1.00	.	.	.	.

17-2. Aquatic Stresses by Region - Dragonfly and Damselfly

Stress Key:

1. = Siltation
2. = Chemical pollution
3. = Accelerated eutrophication
4. = Channelization
5. = Man-made dams
6. = Permanent drainage
7. = Artificial water level manipulation
8. = Shoreline alteration
9. = Invasive/non-native species
10. = Disease/pathogens
11. = Excessive recreational use
12. = Climate change
13. = Loss of riparian habitat
14. = Loss of shoreline vegetation
15. = Loss of submergent/emergent plants
16. = Shoreline/bank erosion
17. = Streambed degradation

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 17-9. Loess Hills - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	.	3.00
2	2.00	2.00	2.00	2.00	2.00	.	2.00
3	1.00	2.00	2.00	2.00	2.00	.	2.00
4	2.00	2.00	2.00	.	.	.	.
5	1.00	2.00	2.00	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	.	.	.	2.00
8	1.00	1.00	1.00	.	.	.	.
9	1.00	1.00	1.00	1.00	2.00	.	3.00
10	1.00	1.00	1.00	1.00	1.00	.	1.00
11	1.00	1.00	1.00	2.00	1.00	.	1.00
12	1.00	1.00	1.00	1.00	1.00	.	1.00
13	2.00	2.00	2.00	.	1.00	.	1.00
14	2.00	2.00	2.00	1.00	1.00	.	3.00
15	3.00	3.00	3.00	3.00	3.00	.	3.00
16	3.00	3.00	3.00	2.00	1.00	.	1.00
17	3.00	3.00	3.00	3.00	3.00	.	3.00

Table 17-10. Mississippi Alluvial Plain - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	.	3.00
2	3.00	3.00	3.00	3.00	3.00	.	3.00
3	2.00	2.00	2.00	2.00	3.00	.	3.00
4	2.00	2.00	2.00	.	.	.	.
5	.	.	.	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	2.00	.	.	2.00
8	3.00	2.00	2.00	.	.	.	.
9	3.00	3.00	3.00	3.00	3.00	.	3.00
10	1.00	1.00	1.00	1.00	1.00	.	1.00
11	3.00	1.00	1.00	2.00	1.00	.	1.00
12	1.00	1.00	1.00	1.00	1.00	.	1.00
13	2.00	2.00	2.00	.	1.00	.	1.00
14	2.00	2.00	2.00	1.00	1.00	.	3.00
15	3.00	3.00	3.00	3.00	3.00	.	3.00
16	3.00	3.00	3.00	2.00	1.00	.	1.00
17	3.00	3.00	3.00	3.00	3.00	.	3.00

Table 17-11. Missouri Alluvial Plain - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	.	3.00
2	3.00	3.00	3.00	3.00	3.00	.	3.00
3	2.00	2.00	2.00	2.00	3.00	.	3.00
4	2.00	2.00	2.00	.	.	.	.
5	.	.	.	.	.	.	.
6	.	.	.	.	.	.	3.00
7	3.00	.	.	2.00	.	.	2.00
8	3.00	2.00	2.00	.	.	.	.
9	3.00	3.00	3.00	3.00	3.00	.	3.00
10	1.00	1.00	1.00	1.00	1.00	.	1.00
11	3.00	1.00	1.00	2.00	2.00	.	1.00
12	1.00	1.00	1.00	1.00	1.00	.	1.00
13	2.00	2.00	2.00	.	1.00	.	1.00
14	2.00	2.00	2.00	1.00	1.00	.	3.00
15	3.00	3.00	3.00	3.00	3.00	.	3.00
16	3.00	3.00	3.00	2.00	1.00	.	1.00
17	3.00	3.00	3.00	3.00	3.00	.	3.00

Table 17-12. Prairie to Hardwood Transition - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	1.00	2.00	2.00	2.00	2.00	2.00	2.00
4	1.00	1.00	1.00	.	.	.	.
5	.	1.00	1.00	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	1.00	.	.	2.00
8	1.00	1.00	1.00	.	.	3.00	.
9	3.00	3.00	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.00	3.00	2.00	3.00	1.00	3.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	2.00	2.00	2.00	1.00	1.00	1.00	1.00
14	1.00	1.00	1.00	1.00	1.00	2.00	3.00
15	3.00	3.00	3.00	3.00	3.00	3.00	3.00
16	3.00	3.00	3.00	2.00	1.00	2.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Table 17-13. Prairie Pothole - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	1.00	2.00	2.00	2.00	2.00	2.00	2.00
4	3.00	3.00	3.00	.	.	.	.
5	.	1.00	1.00	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	1.00	.	.	2.00
8	3.00	3.00	3.00	.	.	3.00	.
9	3.00	3.00	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.00	1.00	1.00	3.00	1.00	3.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	3.00	3.00	3.00	2.00	3.00	2.00	1.00
14	3.00	3.00	3.00	2.00	2.00	2.00	3.00
15	3.00	3.00	3.00	3.00	3.00	3.00	3.00
16	3.00	3.00	3.00	2.00	1.00	2.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Table 17-14. Tallgrass Prairie Iowan Surface - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	1.00	2.00	2.00	2.00	2.00	2.00	2.00
4	2.00	2.00	2.00	.	.	.	.
5	.	1.00	1.00	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	1.00	.	.	2.00
8	1.00	1.00	1.00	.	.	3.00	.
9	3.00	3.00	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	1.00	1.00	1.00	3.00	1.00	3.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	2.00	2.00	2.00	1.00	1.00	1.00	1.00
14	2.00	2.00	2.00	1.00	1.00	3.00	3.00
15	3.00	3.00	3.00	3.00	3.00	3.00	3.00
16	3.00	3.00	3.00	2.00	1.00	2.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Table 17-15. Tallgrass Prairie Southern Iowa Drift Plain - Dragonfly and Damselfly

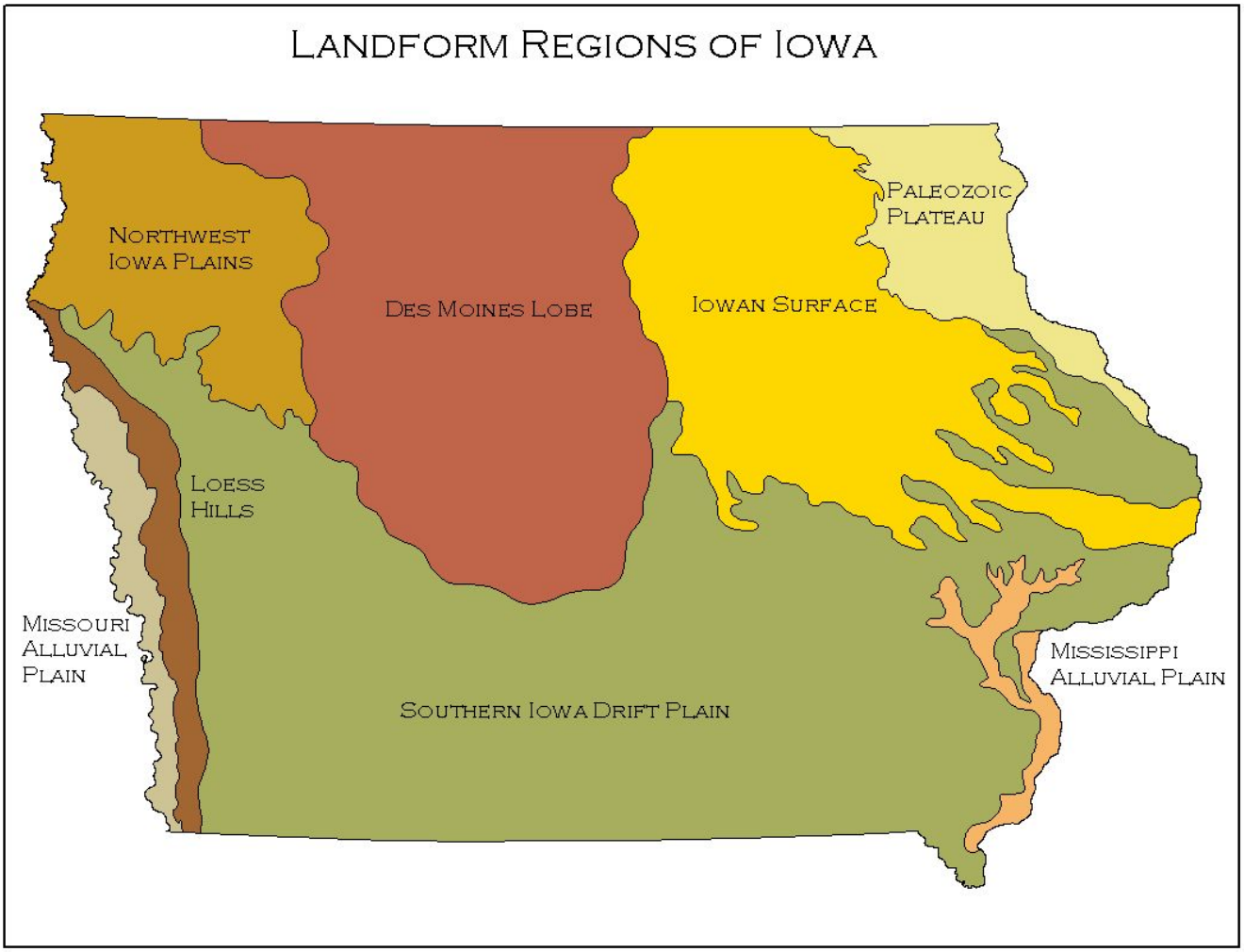
Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	1.00	2.00	2.00	2.00	2.00	2.00	2.00
4	2.00	2.00	2.00	.	.	.	.
5	1.00	2.00	2.00	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	2.00	.	.	2.00
8	1.00	1.00	1.00	.	.	3.00	.
9	3.00	3.00	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	1.00	1.00	1.00	3.00	1.00	3.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	2.00	2.00	2.00	1.00	1.00	1.00	1.00
14	2.00	2.00	2.00	1.00	1.00	3.00	3.00
15	3.00	3.00	3.00	3.00	3.00	3.00	3.00
16	3.00	3.00	3.00	2.00	1.00	2.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Table 17-16. Tallgrass Prairie Northwest Iowa Plains - Dragonfly and Damselfly

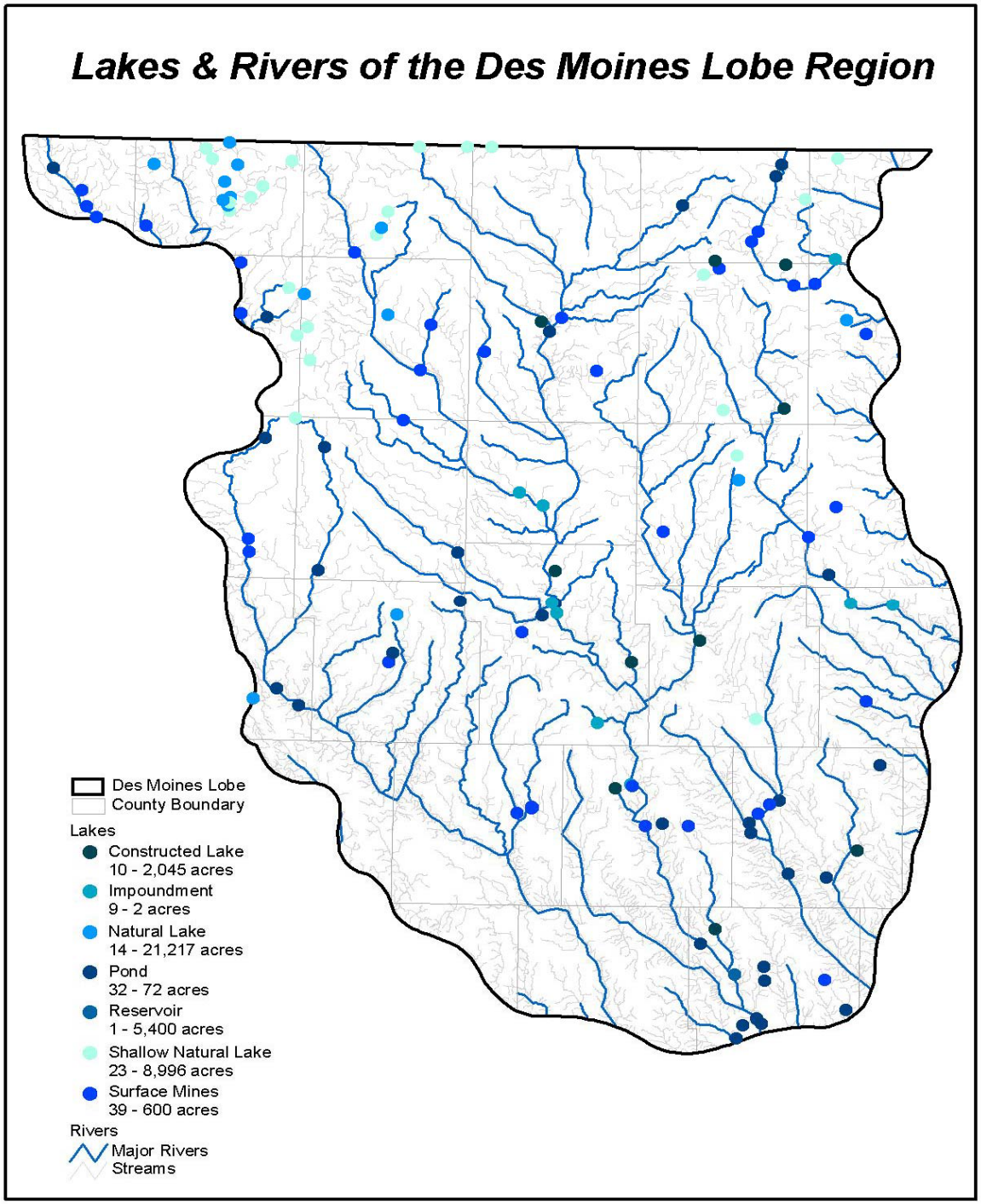
Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	1.00	2.00	2.00	1.00	2.00	2.00	2.00
4	2.00	2.00	2.00	.	.	.	.
5	.	1.00	1.00	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	1.00	.	.	2.00
8	1.00	1.00	1.00	.	.	3.00	.
9	3.00	3.00	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	1.00	1.00	1.00	3.00	1.00	3.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	2.00	2.00	2.00	1.00	1.00	1.00	1.00
14	2.00	2.00	2.00	1.00	1.00	3.00	3.00
15	3.00	3.00	3.00	3.00	3.00	3.00	3.00
16	3.00	3.00	3.00	2.00	1.00	2.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00

APPENDIX 18. Iowa Lakes and Rivers by Region

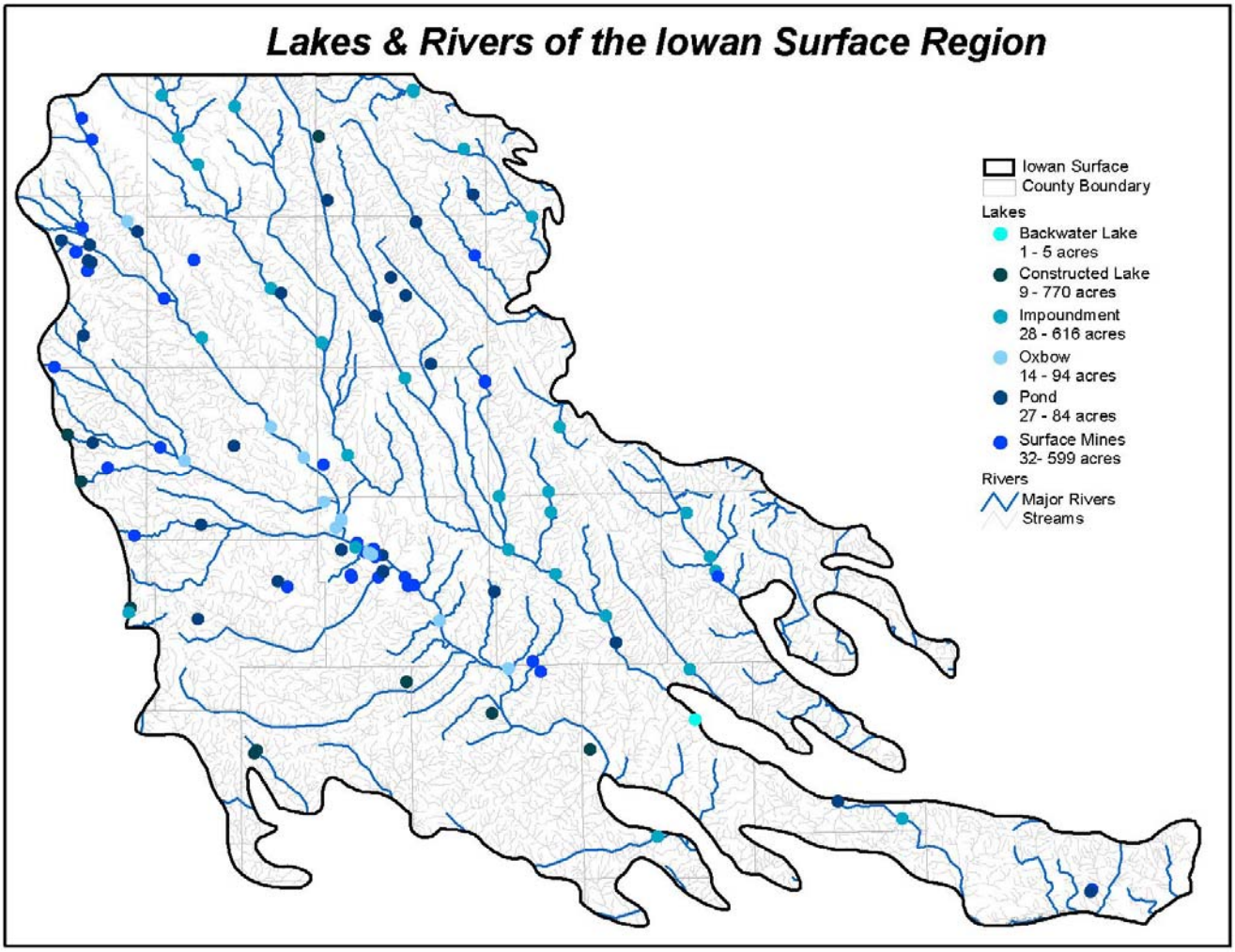
Region Locator Map



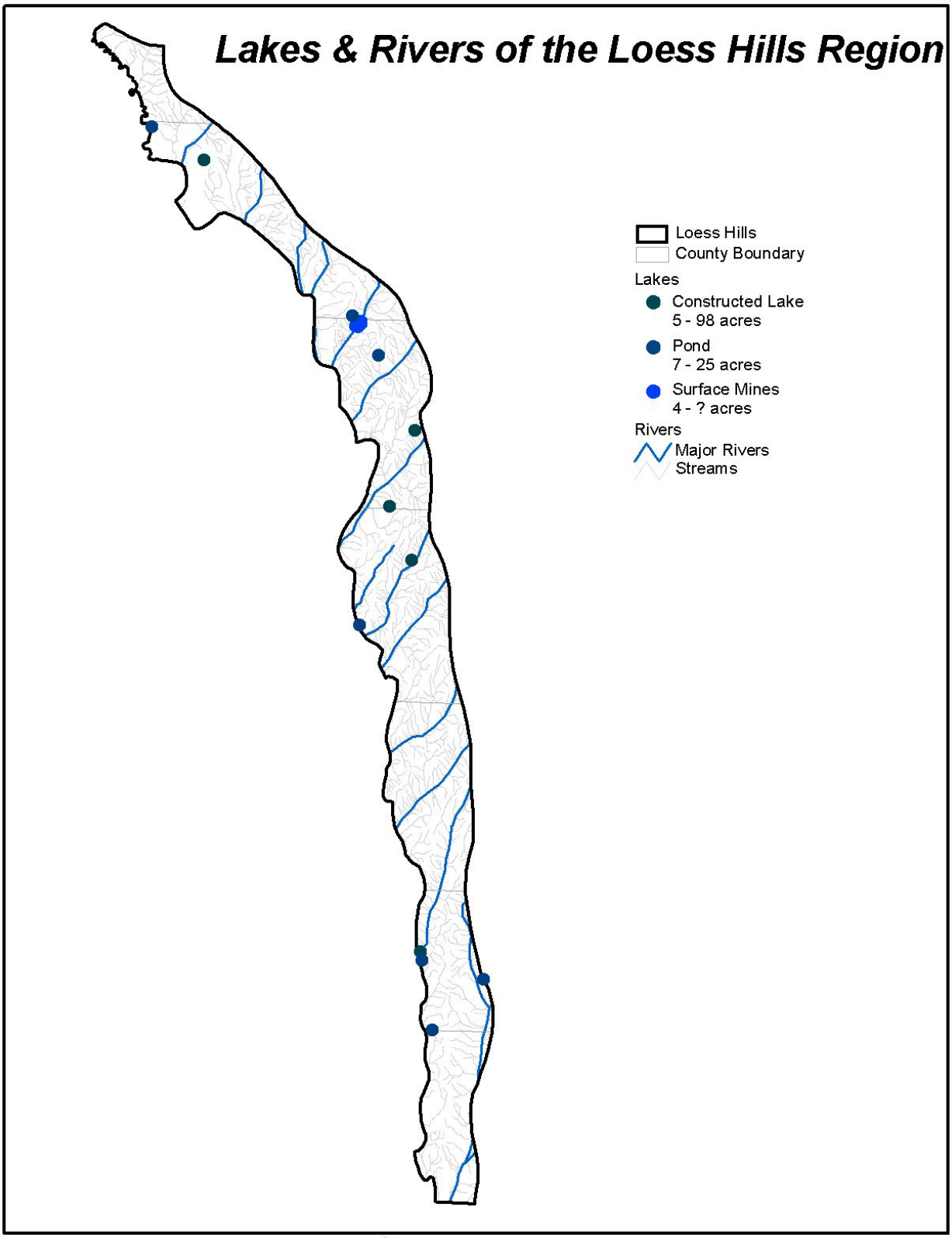
Map 18-1. Des Moines Lobe - Lakes and Rivers



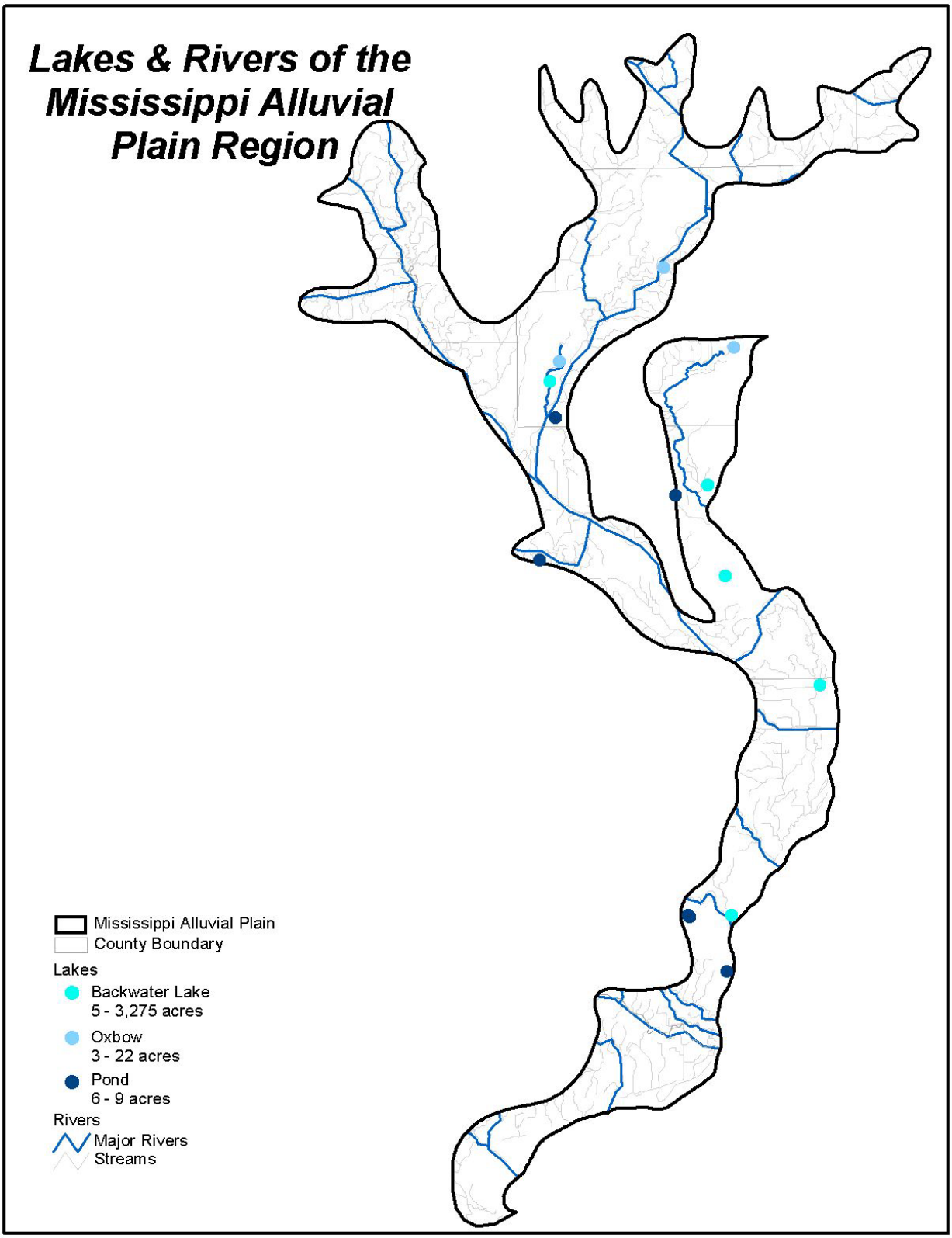
Map 18-2. Iowan Surface - Lakes and Rivers



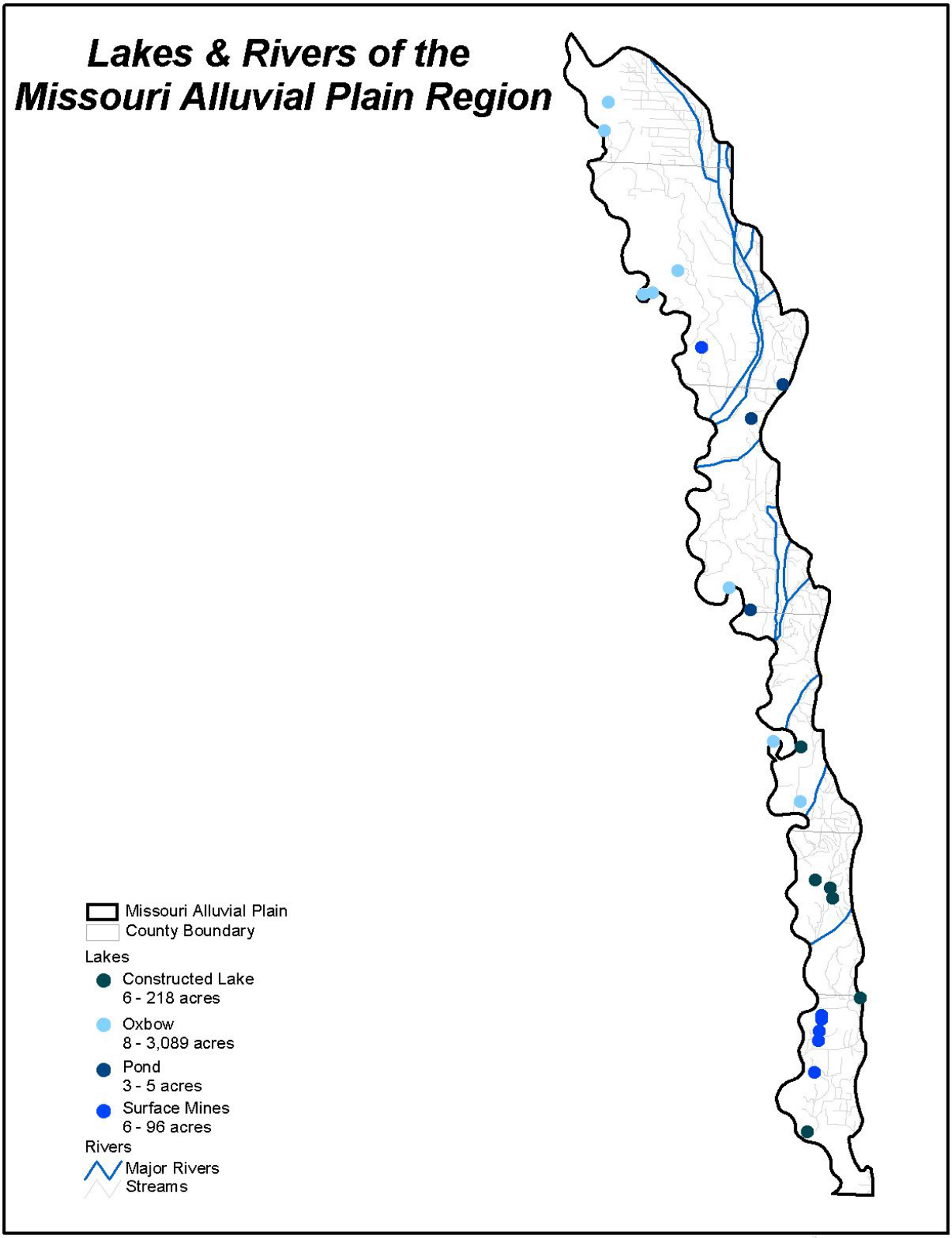
Map 18-3. Loess Hills - Lakes and Rivers



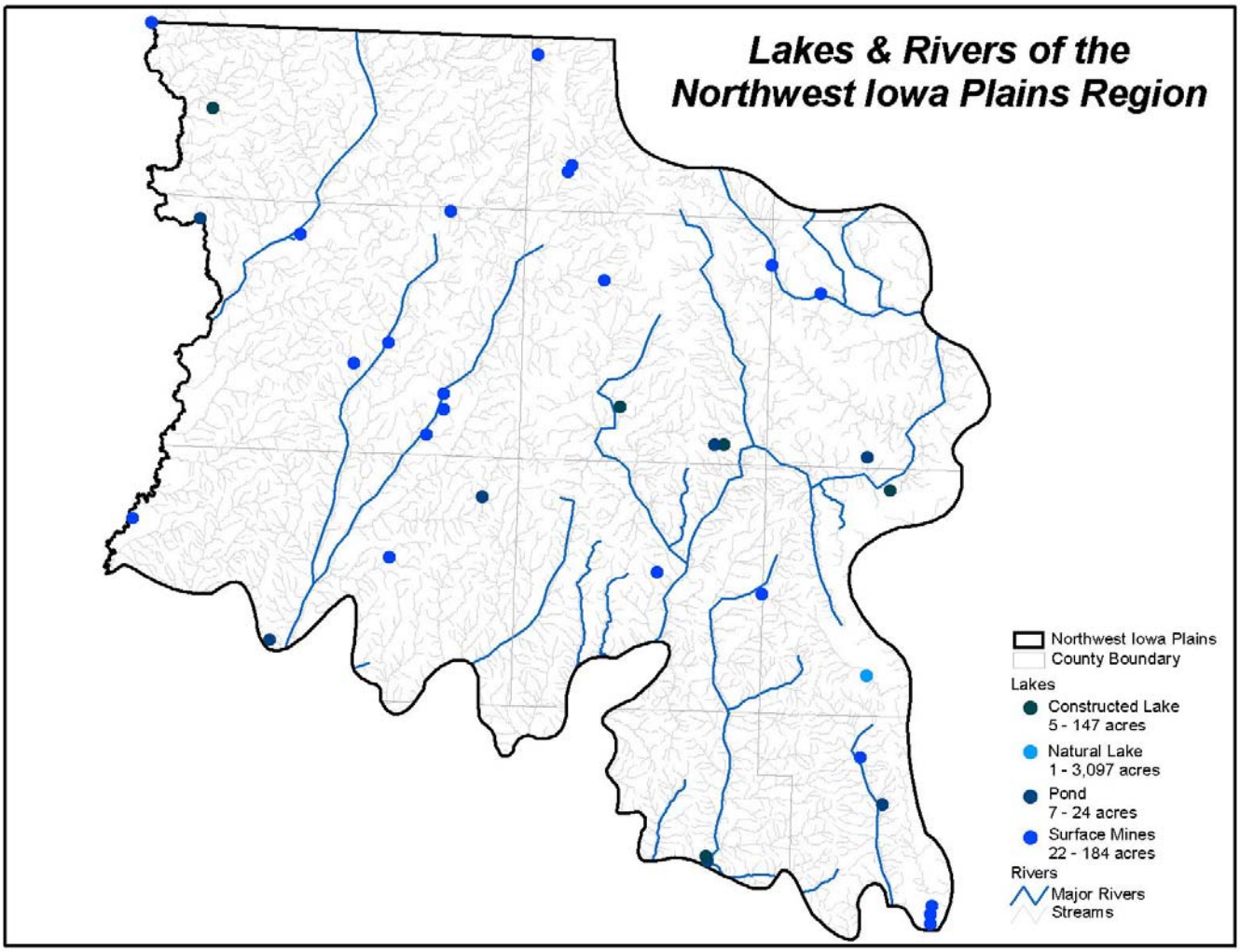
Map 18-4. Mississippi Alluvial Plain - Lakes and Rivers



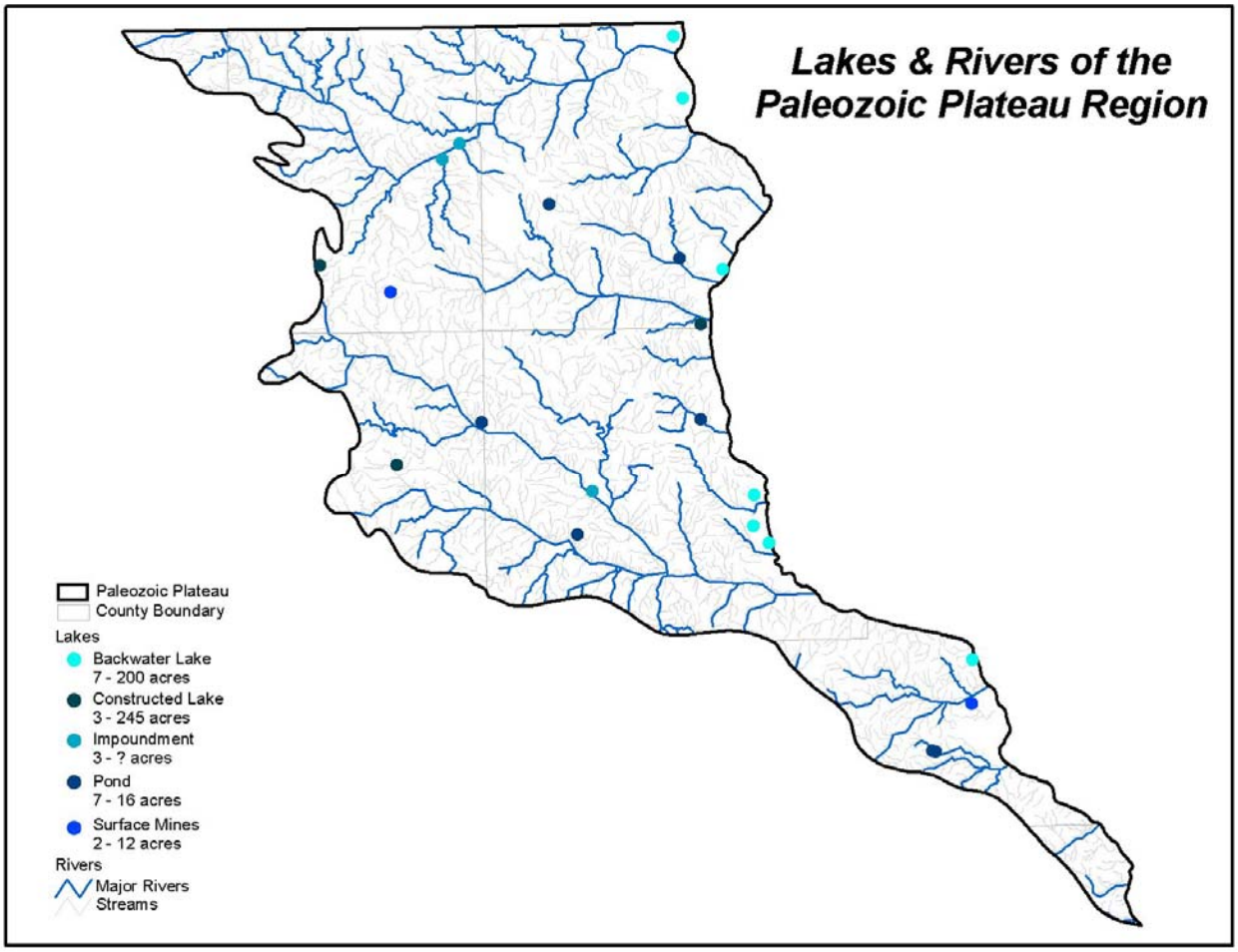
Map 18-5. Missouri Alluvial Plain - Lakes and Rivers



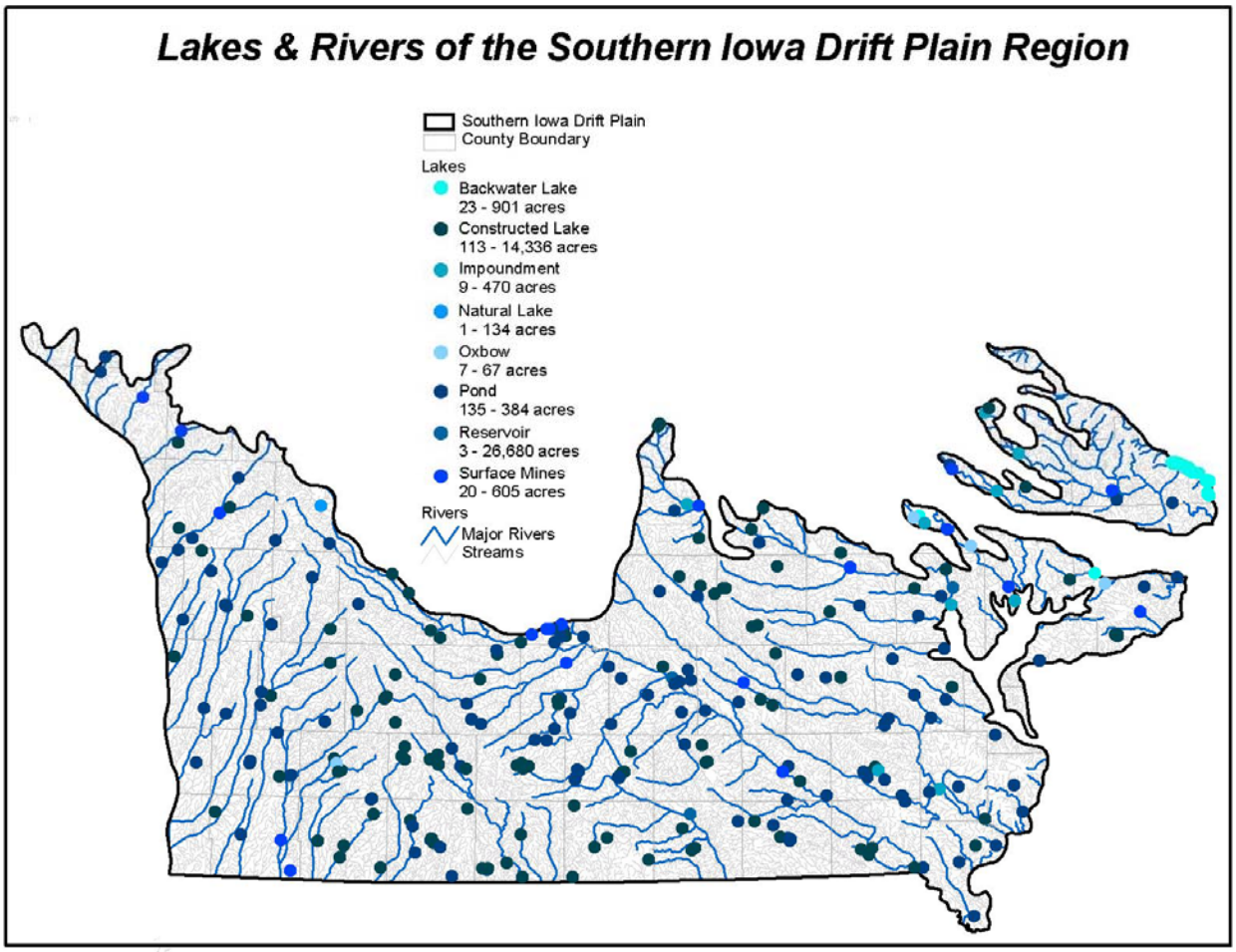
Map 18-6. Northwest Iowa Plains - Lakes and Rivers



Map 18-7. Prairie to Hardwood Transition - Lakes and Rivers

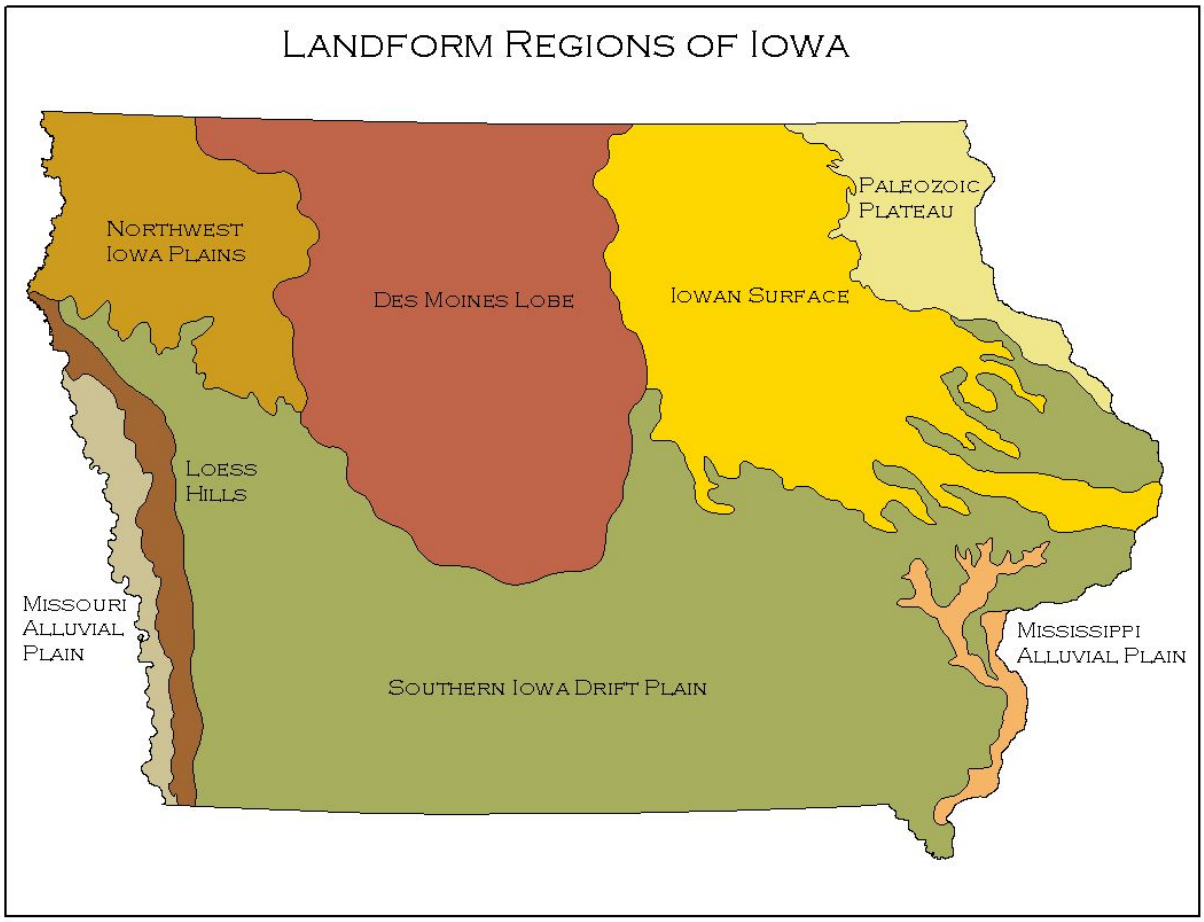


Map 18-8. Southern Iowa Drift Plain - Lakes and Rivers

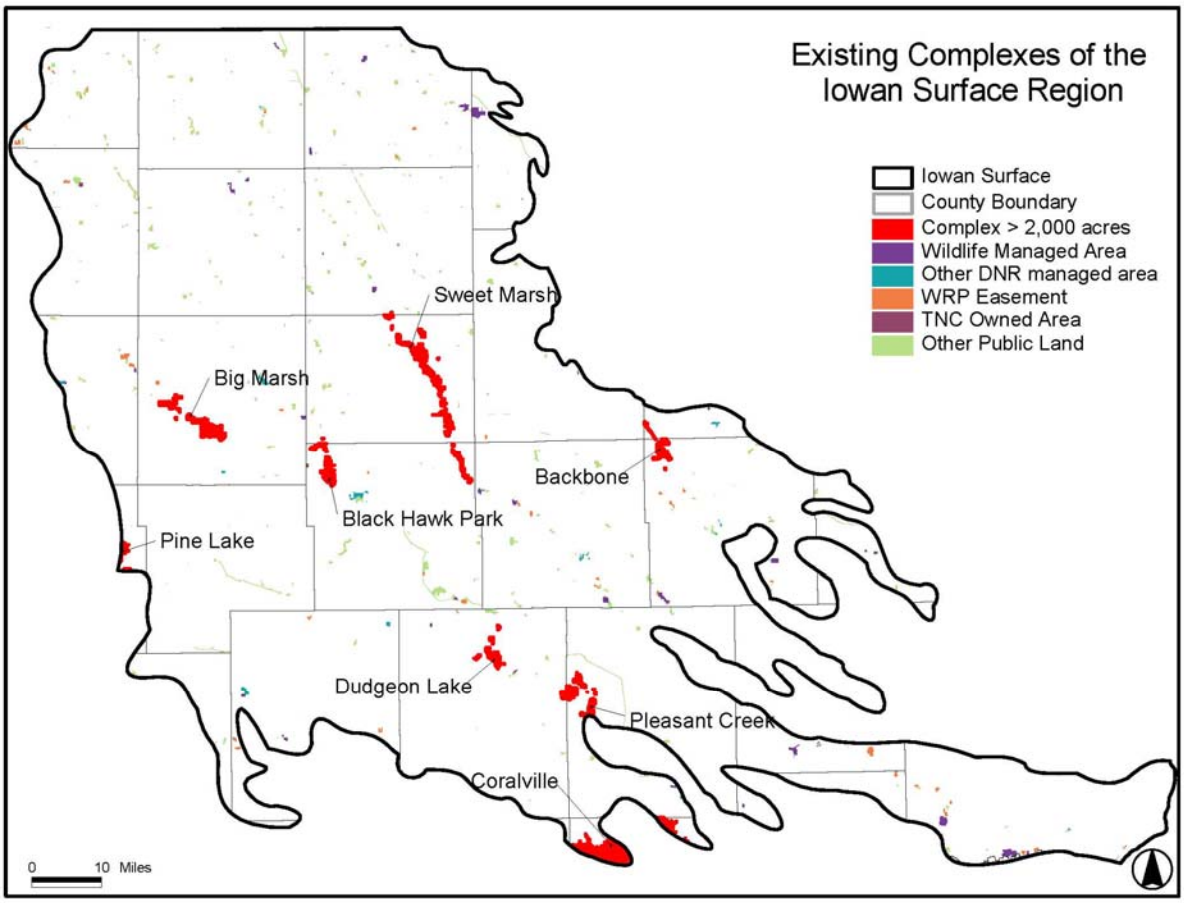


APPENDIX 19. Existing Large Habitat Complexes in Public Ownership by Region

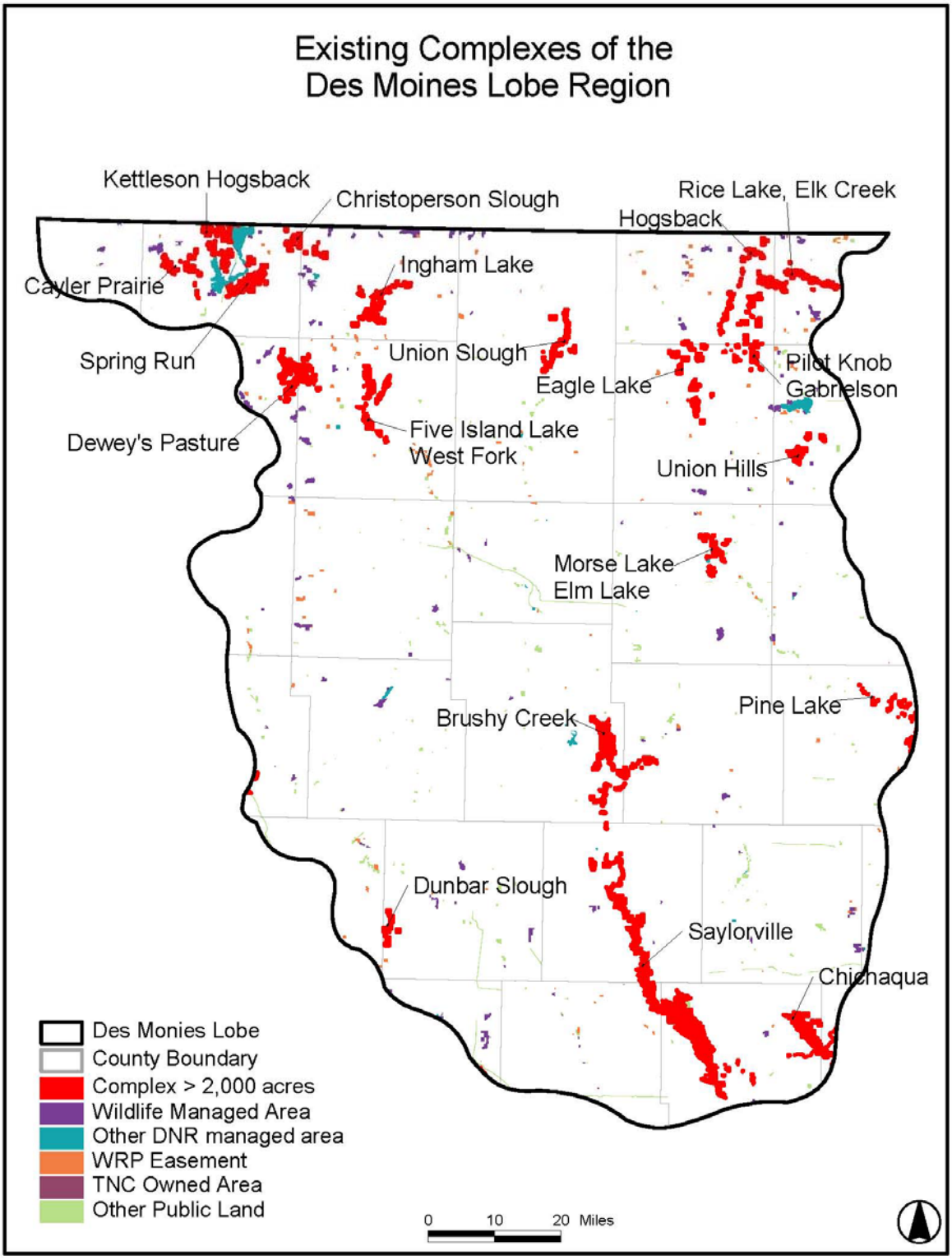
Region Locator Map



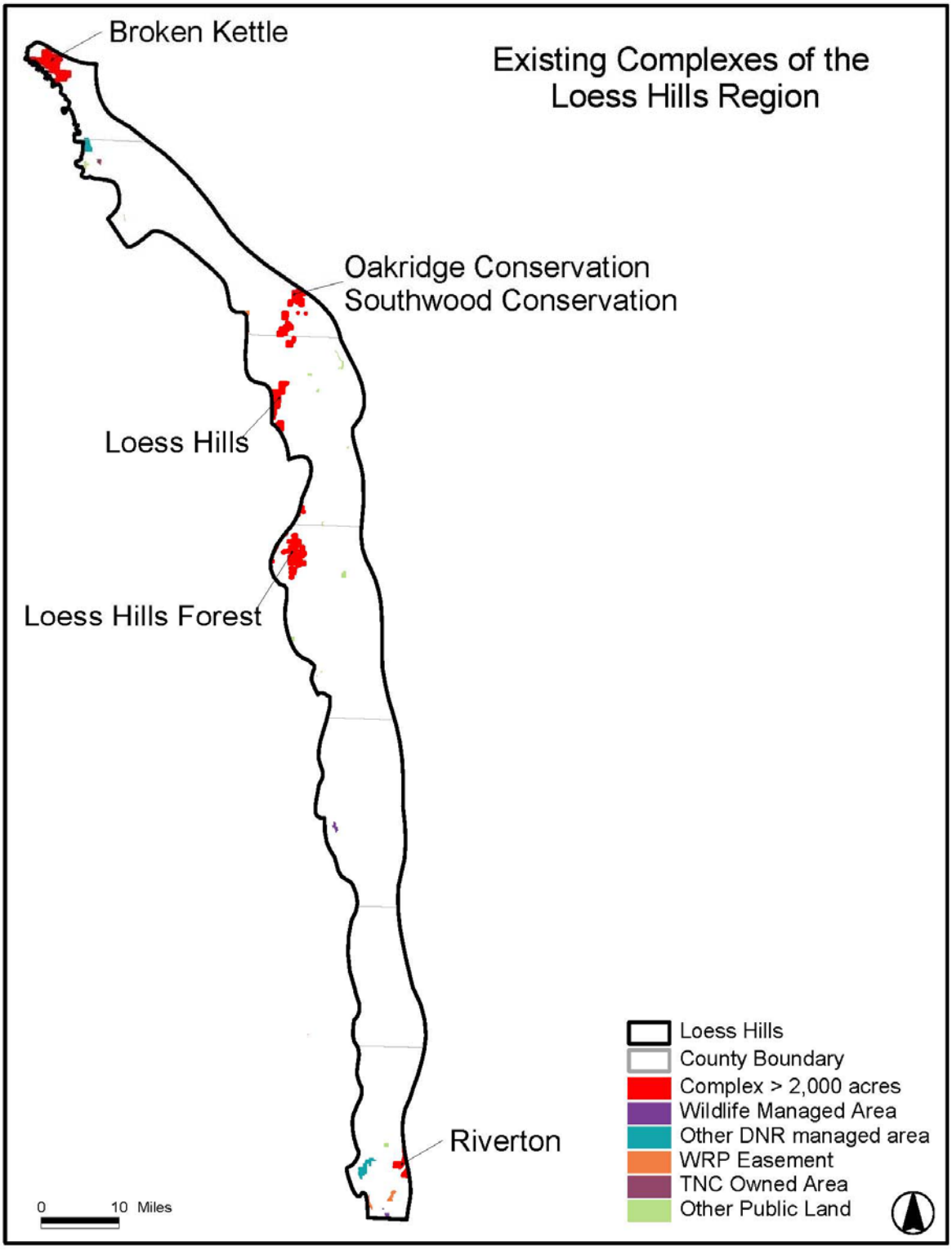
Map 19-1. Iowan Surface - Large Habitat Complexes



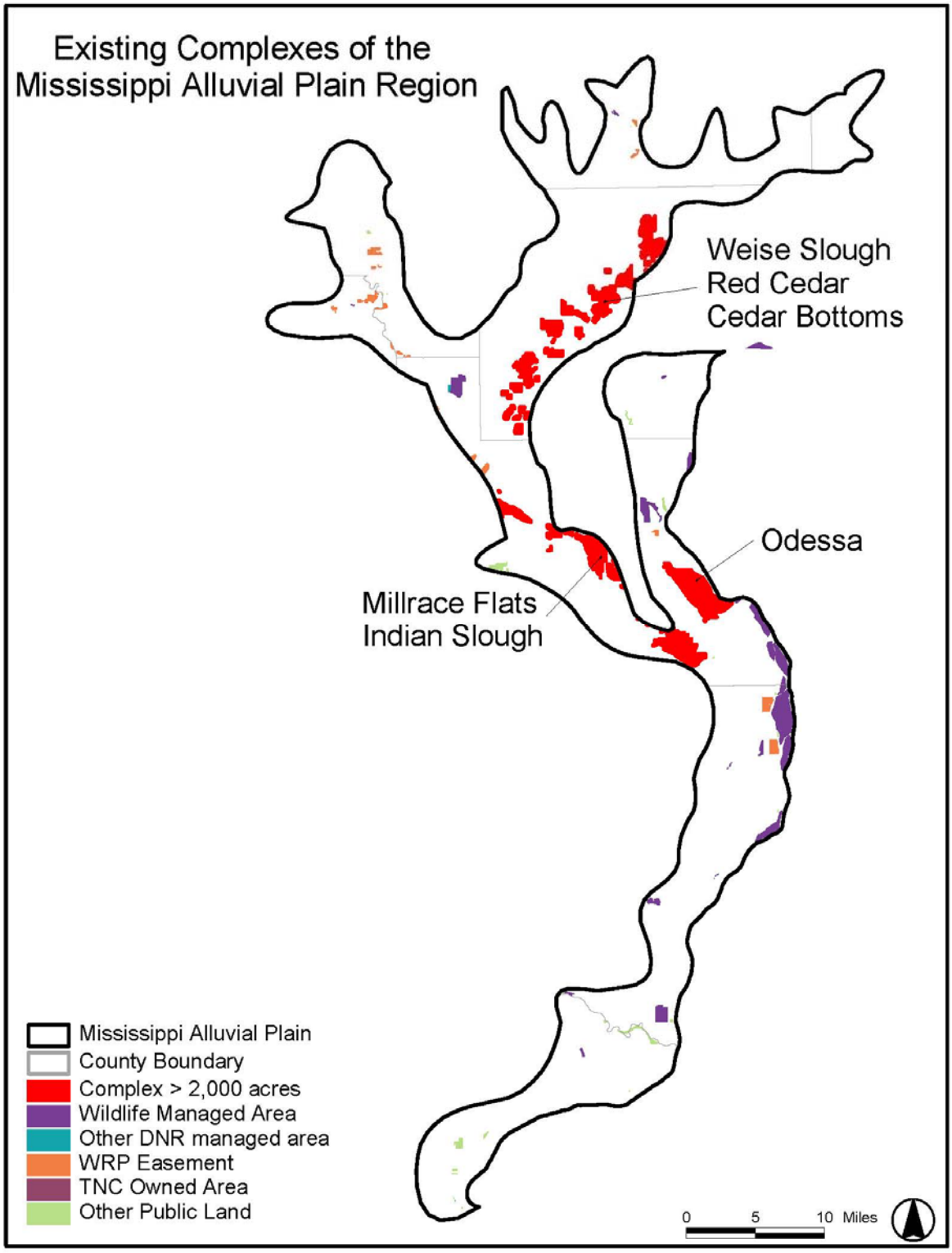
Map 19-2. Des Moines Lobe - Large Habitat Complexes



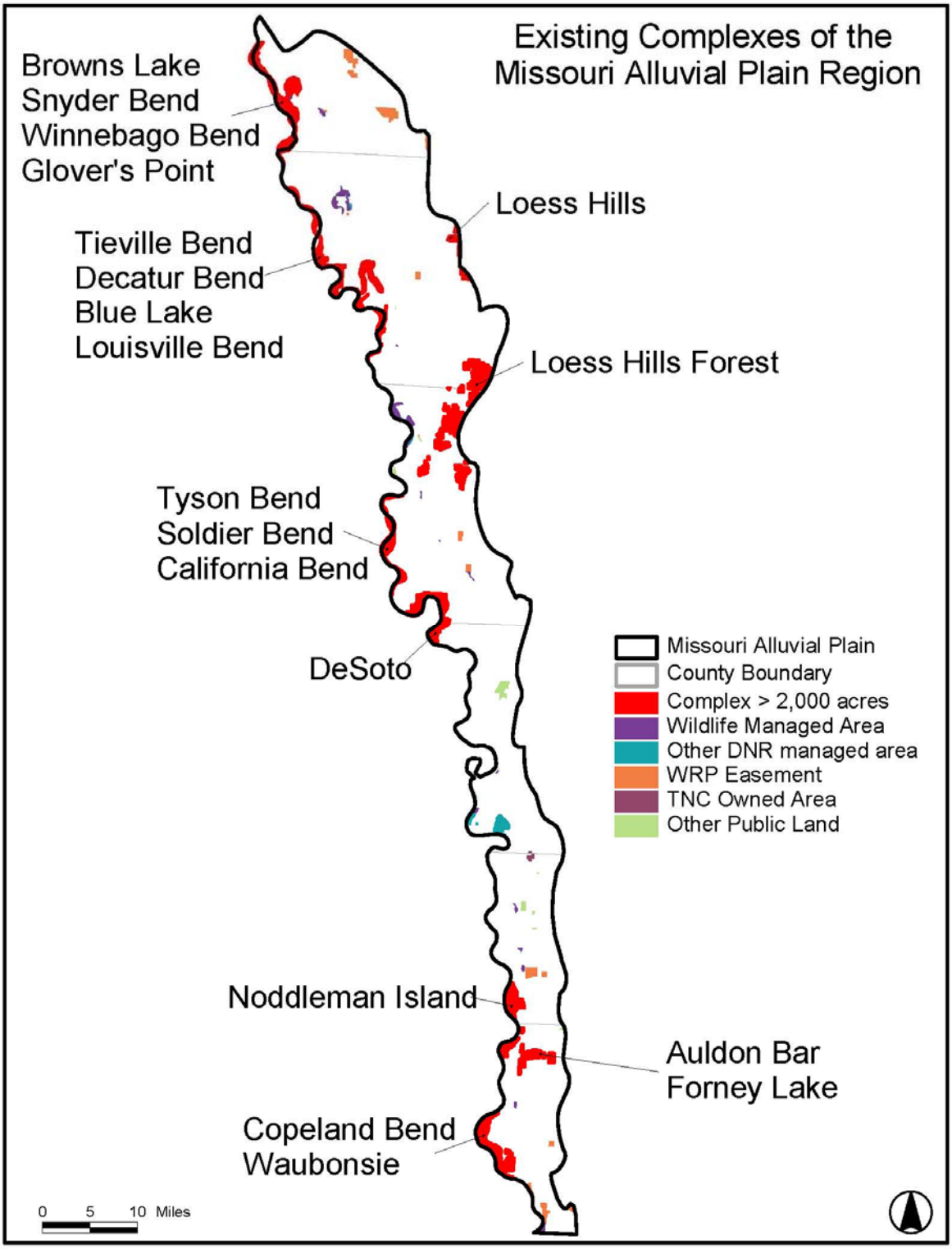
Map. 19-3. Loess Hills - Large Habitat Complexes



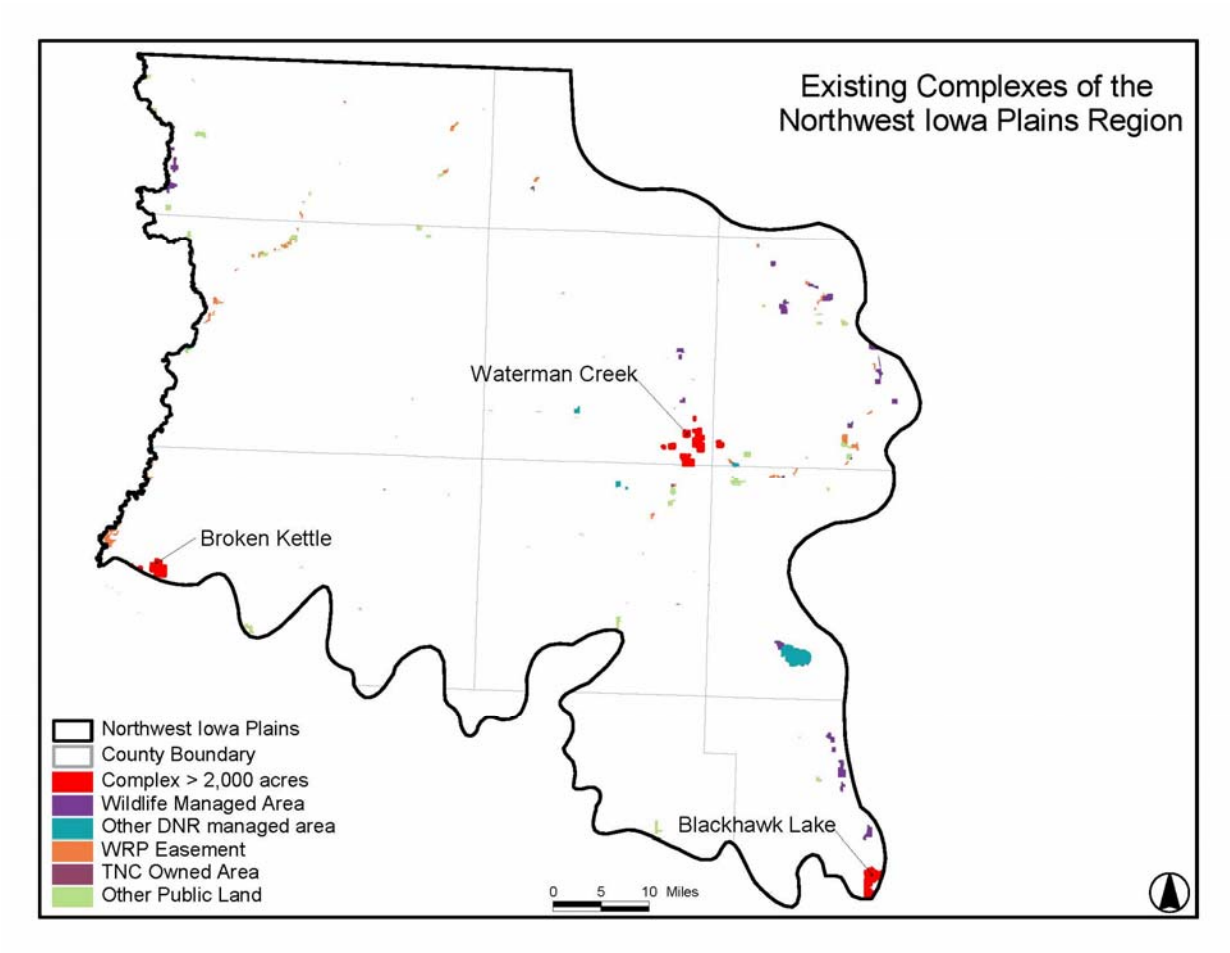
Map 19-4. Mississippi Alluvial Plain - Large Habitat Complexes



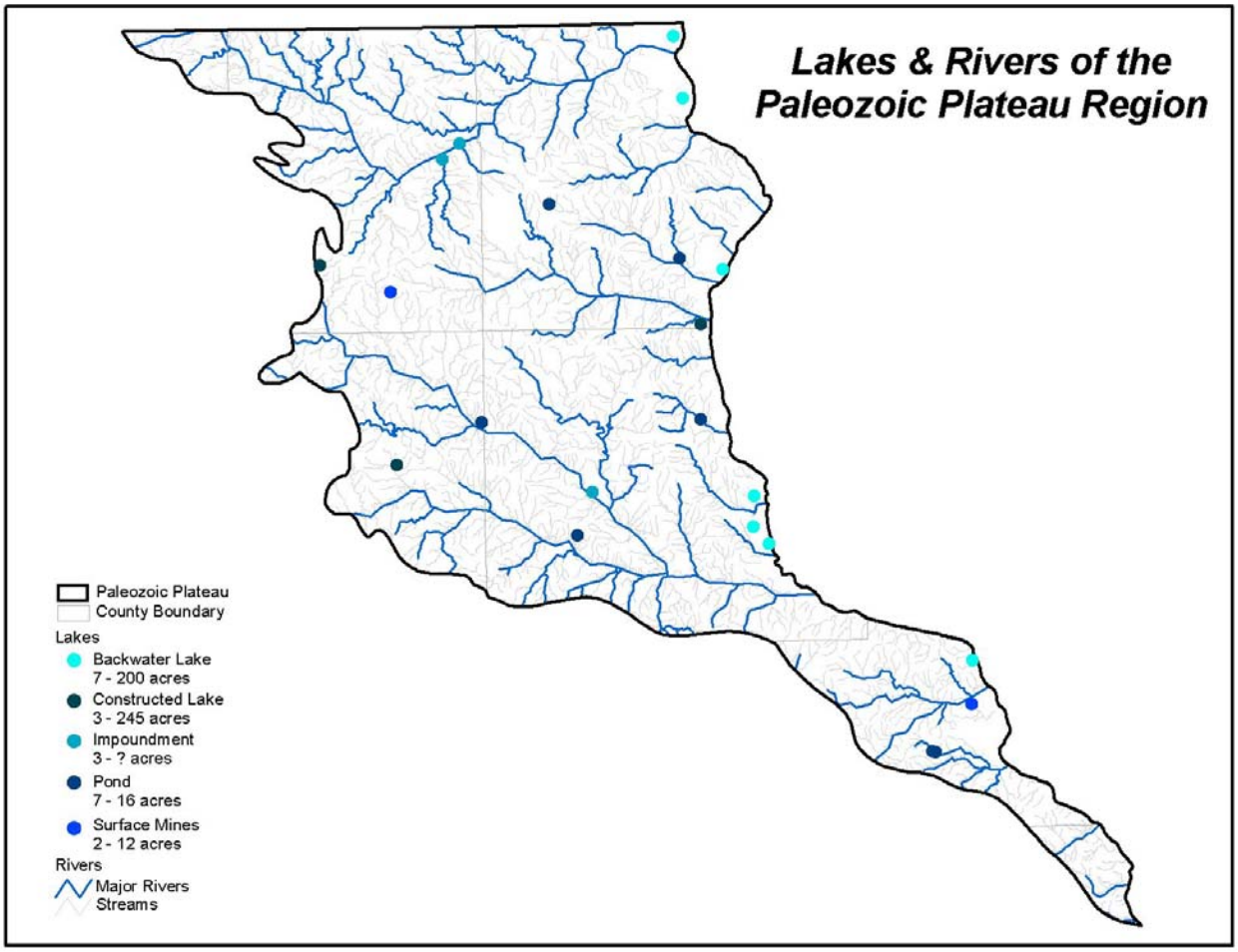
Map. 19-5. Missouri Alluvial Plain - Large Habitat Complexes



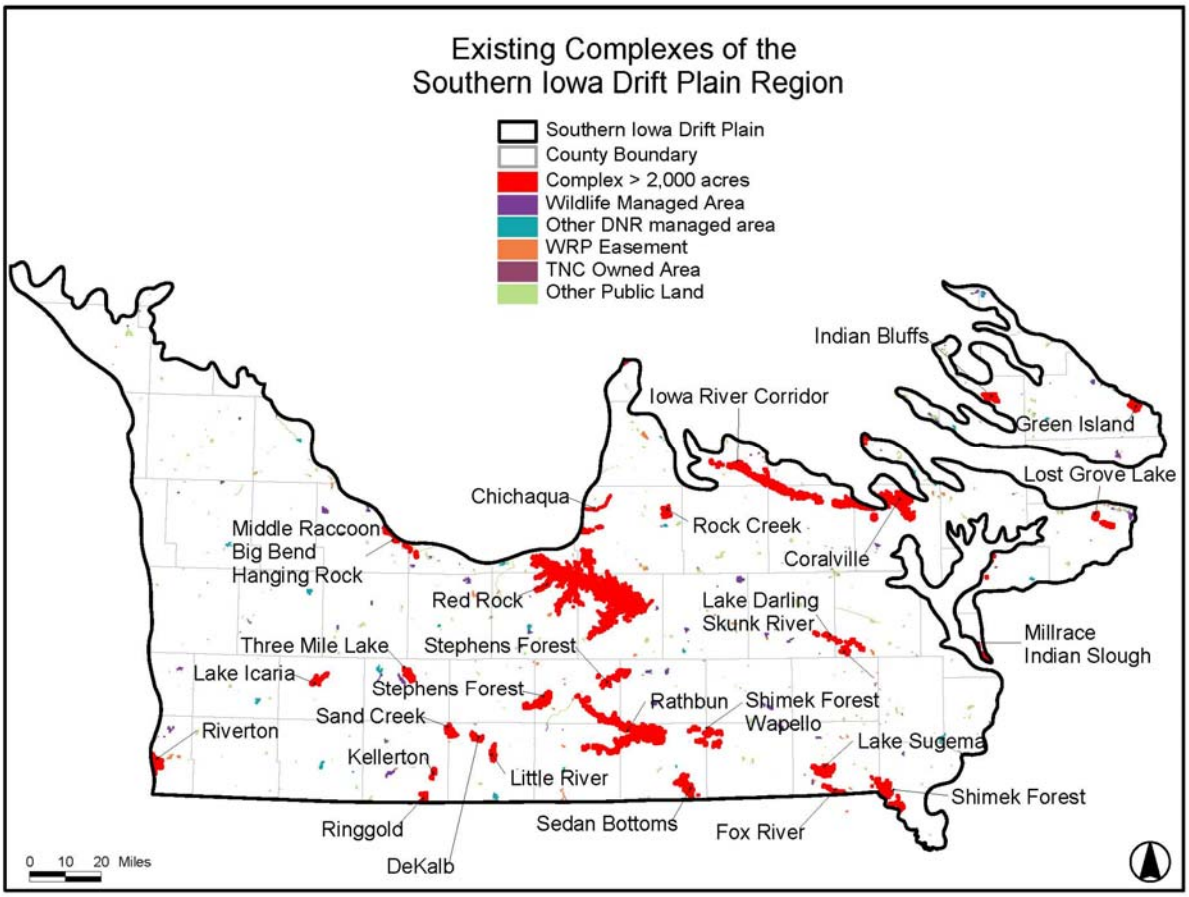
Map 19-6. Northwest Iowa Plains - Large Habitat Complexes



Map 19-7. Paleozoic Plateau Large Habitat Complexes



Map 19-8. Southern Iowa Drift Plain - Large Habitat Complexes



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http://www.biodiversitypartners.org -Defenders of Wildlife home page, information on invasive species control grants, monitoring recommendations
http://www.fws.gov - U.S. Fish and Wildlife Service home page
http://www.fws.gov/midwest/planning - Plans for DeSoto, Union Slough, Mark Twain refuges
http://www.iowaaudubon.org - Iowa Audubon home page.
http://www.iowadnr.com - Iowa Department of Natural Resources home page
http://www.nabci-us.org - National Bird Conservation initiative home page
http://www.nature.nps.gov/nnl - National Park Service National Landmark Program page
http://www.natureserve.org - Nature Serve home page
http://northamerican.fws.gov/NAWMP/nawmphp.htm - U.S. Fish and Wildlife Service
North American Waterfowl Management Plan
http://www.npwrc.usgs.gov/resource/distr/lepid/bflyusa.htm#links - United States Geological Survey butterfly link
http://www.partnersinflight.org - Partners-in-Flight home page
http://shorebirdplan.fws.gov - U.S. Fish and Wildlife Service shorebird plan
http://www.waterbirdconservation.org - Waterbird conservation plan

STRATEGIC AND OPERATIONAL PLANS DEVELOPED BY WILDLIFE CONSERVATION ORGANIZATIONS:

North American Waterfowl Management Plan
- Prairie Pothole Joint Venture (PPJV) Implementation Plan
- Iowa PPJV Implementation Plan (IDNR)
- Upper Mississippi River and Great Lakes Region (UMRJV) Implementation Plan,
- Iowa UMRJV Implementation Plan

The Nature Conservancy Ecoregional Plan:
- Central Tallgrass Prairei
- Northern Tallgrass Prairie
- Prairie Forest Border

Partners in Flight Physiographic Area Plans:
- Dissected Till Plains - Physiographic Region #32
- Northern Tallgrass Prairie, Physiographic Region #40
- Upper Great Lakes Plain, Physiographic Region #16

United States Waterbird Conservation Plan
United States Shorebird Conservation Plan

APPENDIX 21. Monitoring and Surveys Conducted on Iowa's Wildlife: 1960-2004

21-1. Terrestrial Wildlife - Long Term Monitoring

Population Monitoring	Lead Agency	Description	Years
Game Species			
Deer Populations	IDNR	Aerial counts, Spotlight routes, Roadkills.	1976 – Present
Turkey Brood Production	IDNR	IDNR and rural resident cooperators	1976 – Present
Duck Breeding Populations	IDNR, FWS	Aerial surveys, Ground transects	1955 – Present
Giant Canada Goose Populations	IDNR, FWS	Aerial surveys and ground transects.	1964 – Present
Waterfowl Migration	IDNR	Weekly counts during fall migration	1970– Present
Midwinter Waterfowl	IDNR, FWS	Counts of waterfowl populations	1955 -Ppresent
Mourning Dove Call-Count	IDNR, FWS	Call-count routes in summer.	1966 - Present
August Roadside	IDNR	Permanent count routes for upland game	1962 - Present
Winter pheasant survey	IDNR	Sex ratio counts	1963 – 1990
Ruffed grouse drumming survey	IDNR	Drumming male counts	1962 – 1998
Nongame Species			
Breeding Bird Survey	IDNR, FWS	Breeding bird survey routes.	1966 – Present
Audubon Christmas Bird Count	Audubon	Volunteer searches	1906 – Present
Midwinter Bald Eagle Counts	USGS, IDNR, Audubon	Counts of wintering eagles	1991 – Present
Prairie Chicken Booming Grounds	IDNR	Lek locations and booming male counts	1995 – Present
Sandhill Crane Breeding Populations	Intl. Crane Foundation, IDNR	Counts of nesting pairs	1998 – Present
Sandhill Crane Nest Monitoring	IDNR	Production of young from known nests.	1992 – Present
Osprey Nest Monitoring	IDNR, CCB Partners	Nest location and fate for all known nests	1997 – Present
Barn Owl Nest Monitoring	IDNR	Nest location and fate for all known nests	1983 – Present
Kestrel Nest Box Monitoring	DNR, Volunteers	Maintain records for kestrel nest box trails	1983 – 1997
Trumpeter Swan Nest Monitoring	IDNR	Nest locations and fate of all known nests	1998 – present
Colonial Waterbirds	Naturemapping	Record all known rookeries	1993 – 1997
Peregrine Falcon Nest Monitoring	IDNR	Nest location and fate for all known nests	1992 – present
Bald Eagle Nest Monitoring	IDNR, FWS	Nest location and fate for all known nests	1977 – Present
Bobcat Status Monitoring	IDNR	Statewide distribution of bobcats	2001 - present
River Otter Monitoring	IDNR	Distribution from release sites	1985 – present
Iowa Naturemapping	ISU, Volunteers	Informal citizen-based reporting	1999 – Present

21-1. Terrestrial Wildlife - Long Term Monitoring (continued)

Game Harvest Monitoring	Lead Agency	Description	Years
Deer Harvest	IDNR	Based on hunter surveys.	1953 – Present
Turkey Spring Harvest	IDNR	Based on hunter surveys.	1953 – Present
Turkey Fall Harvest	IDNR	Based on hunter surveys.	1953 – Present
Furbearer Harvest	IDNR	Furharvester reports	1953 – Present.
Waterfowl Harvest	IDNR, FWS	Hunter surveys, waterfowl parts collections.	1953 – Present
Small Game Harvest	IDNR	Hunter Surveys	1962 – Present

21-2 Terrestrial Wildlife - Short Term Surveys and Inventories

Survey	Lead Agency/Person	Description	Years
Birds			
Iowa Breeding Bird Atlas	IDNR, volunteers	Statewide survey of Iowa's breeding birds	1985-1990
Raptor migration survey	Audubon, IDNR	Fall migration surveys at selected locations, intermittent at most sites	1982 - Present
Mammals			
Small mammal inventory	Bowles [1]	Seven southcentral counties)	Jun-Aug 1984
Small mammal inventory	Bowles	Statewide road kills	1980-1990
Small mammal inventory	Bowles	Rathbun WMA)	1978-1982
Small mammal inventory	Bowles	Pilot Knob State Park	1981-1982
Small mammal inventory	Bowles	Distribution of *Perognatus flavescens*	1984-1991
Small mammal inventory	Bowles	Ogren farm - Marion County	1974-1980
Small mammal inventory	Bowles	Marion County	1976-1985
Small mammal inventory	Bowles	Marion County	1979-1980
Small mammal inventory	Bowles	Ada Hayden Heritage Park, Story County	2002
Small mammal inventory	Bowles	Hardin, Mitchell, Worth Counties	1985-1986
Small mammal inventory	Bowles	Fremont &, Mills counties	1983
Small mammal inventory	Bowles	Harrison & Monona Counties - WMAs	1982
Small mammal inventory	Bowles	Scott, Muscatine, Louisa, & Guthrie counties	1988, 1992-1993
Small mammal inventory	Bowles	Woodbury & Plymouth counties	1981
Small mammal inventory	Bowles	Sioux & Lyon Counties	1980
Small mammal inventory	Bowles	Woodbury &, Guthrie counties	1980
Small mammal inventory	Bowles	Webster County (	1981
Small mammal inventory	Bowles	Clayton County	1976, 1983
Small mammal inventory	Bowles	Cherokee County	1979-1980
Small mammal inventory	Bowles	Black Hawk County	1976-1983
Bat inventory	Bowles	Eastern half of Iowa (mist nets)	1977-1996
Small mammal inventory	McCullough	Wapsipinicon River, Clinton & Scott counties	2003
Bat Survey For Rabies	State Hygienic Lab, Coralville	Statewide	1979-1991
Reptiles & Amphibians			
Loess Hills Reptile And Amphibian Inventory	Christiansen [3]	Searches for reptiles and amphibians	1983
Survey Of Gray Tree Frog Spp.	Christiansen and	Distribution of the gray treefrog complex	1996

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Survey	**Lead Agency/Person**	**Description**	**Years**
Cricket Frog Survey	Christiansen and VanGorp	Survey of cricket frogs in northern Iowa.	1996
Red-Bellied Watersnake Survey.	Christiansen	Distribution of red-bellied watersnakes in southeast Iowa.	2000
Blanding's Turtle Survey.	Christiansen – VanDeWalle	Blanding's turtle in northern Iowa	1998 – 1999
Big Sand Mound Illinois Mud Turtle And Ornate Box Turtles	Christiansen	Mark and recapture study at Big Sand Mound Preserve in Louisa County.	1970 – present
Reptile And Amphibian Distribution Inventories	Christiansen	Statewide distribution and status of reptiles and amphibians	1970 – present
Copperbelly Watersnake Survey .	Christiansen	Distribution of Copperbelly watersnakes in Muscatine and Louisa counties.	1998
Massasauga Rattlesnake Survey.	VanDeWalle – Christiansen	Massasauga populations in eight Iowa counties	2000 – 2002
Lower Cedar River Reptiles and Amphibians Inventory	VanDeWalle - Christiansen	Inventory of existing species and review of historical recoprds	2004 - 2005

[1] Dr. John Bowles, Central College, Pella
[2] Dr. Thomas Rosberg, Drake University, Des Moines
[3] Dr. James L. Christiansen, Drake University, Des Moines

21-3. Aquatic Species – Long Term Monitoring

Survey	Lead Agency	Description	Years
Statewide Lake Monitoring	IDNR	fish populations on selected lakes	1950's – present
French Creek Trout Population Monitoring	IDNR	Population characteristics of brown and brook trout	1980– present
Mississippi River Monitoring	IDNR, FWS	Fish populations, water quality, aquatic vegetation, and macroinvertebrates in Pool 13 of the Mississippi River.	1989 – present
Middle Missouri River Ecosystem Monitoring	IDNR	Fish and invertebrates in the middle reach of the Missouri River.	1996 – present
Higgin's Eye Pearlymussel Monitoring	FWS, IDNR	Higgin's eye populations in 10 habitat areas the Mississippi River.	2000 – present
Rathbun Lake Tributary Stream Monitoring	IDNR	Water quality, fish communities and habitat suitability of Rathbun Lake tributaries	1994 – present
Zebra Mussel Monitoring	FWS	Abundance and distribution in the Upper Mississippi River	2001 – present

21-4 Aquatic Species – Short Term Surveys and Inventories

Survey	Lead Agency	Description	Years
Topeka Shiner Survey	IDNR	Distribution and abundance	1997-2000
Southwest Iowa Stream Survey	IDNR	Presence, abundance, and habitat of fish in SW Iowa streams	2002– present
Flathead Chub Survey	IDNR	Distribution and abundance in the West Nishnabotna watershed	2005 - 2007
Topeka Shiners And Flathead Chub Survey	IDNR	Presence of Topeka shiners and flathead chubs in 9 SW Iowa streams	2005-2007
Warmwater Stream Survey – Ne Iowa	IDNR	Fish populations at 10 sites in Upper Iowa & Turkey Rivers	1999– present
Fish Survey – SW Iowa	IDNR	Fish and habitat in 15 southwest Iowa streams	1997-2000

Survey	Lead Agency	Description	Years
Analysis Of Stream Habitat In Iowa	IDNR	Statewide stream habitat and fish communities	1995 – 2001
Coldwater Stream Survey	IDNR	Game fish in coldwater streams in northeast Iowa.	1999– present
South Pine Creek Brook Trout Survey	IDNR	Population surveys to evaluate changes in the brook trout population.	1994, 1999, 2002
Iowa Rivers Information System	IDNR	Statewide information system for all Iowa interior rivers.	Completed
Flathead Catfish In The Mississippi River	IDNR	Determine age and growth data, develop young-of-the-year indices, and document movement.	1999 - present
Centrachid Overwintering Site Survey	IDNR	Sample in Mississippi River Pools 9 – 11 for centrachid overwintering sites	2000 – 2003
Lower Des Moines River Survey	IDNR	Fish surveys at standard sites in the Lower Des Moines River.	2002 – present
Iowa Lakes Survey	IDNR	Water quality and fish populations of 132 recreational lakes	2000 – 2005
Statewide Mussel Survey	IDNR	Sampled mussel populations in major Iowa streams	1984 – 1985
Statewide Mussel Inventory	IDNR	Sampled inland streams for mussel presence, abundance, and habitat	1998 – 1999
Freshwater Mussel Inventory Of The Des Moines River	IDNR	Des Moines River between Red Rock Dam and Eddyville.	2003
Mussel Inventory Of The Missouri River	FWS	Mussels of the Missouri National Recreational River below Gavins Point Dam	1999
Impacts Of Constructed Weirs - SW Iowa	IDNR	Fish population dynamics and movement in relation to 2 weir designs.	2001 - present