

## HAWKEYE WILDLIFE AREA PRESERVE-MANAGEMENT PLAN

### TABLE OF CONTENTS

HISTORY/BACKGROUND.....	2
NOTABLE FEATURES OF THE PRESERVE.....	2
LOCATION.....	4
SOILS.....	5
STRUCTURES AND FACILITIES.....	5
MANAGEMENT OF ADJACENT LANDS.....	5
MANAGEMENT OF ADJACENT LANDS AND LAND MANAGEMENT PRACTICES.....	6
MANAGEMENT OF VISITORS AND USE.....	7
MANAGEMENT CLASSIFICATION AND MANAGEMENT ZONES.....	7
APPENDICES	



## HISTORY/BACKGROUND

The Coralville Dam was put into operation in 1958. On 1 August, 1959, 3,595 acres were placed under the primary jurisdiction of the Department of the Army until 21 July, 1994. This has subsequently been renewed until the present.

Part of the Hawkeye Wildlife Area (HWA) is owned by the Department of the Army and leased to the Iowa DNR, and the Iowa DNR owns part of the Hawkeye Wildlife Area. The Iowa DNR is charged with management of Hawkeye Wildlife Area, and they file an annual report with the U.S. Corps of Army Engineers.

The area is used by a variety of citizens, and the area proposed for the preserve is open for hunting. Bird watchers from Cedar Rapids and Iowa City also frequent the area, and some individuals go for hikes, often to exercise their dogs or train dogs for hunting.

## NOTABLE FEATURES OF THE PRESERVE

This would be a natural preserve. Most of the interesting features of this area would be either biological or geological. No historical or archaeological features are known.

The proposed preserve is a subset of the larger Hawkeye Wildlife Area, and it comprises sandy soils with a variety of native prairie plants interspersed with wetlands, shrubs, and moist woodlands on the south side of the Iowa River. Non-native plantings of conifers, seeding of prairie grasses, and construction and maintenance of wetlands has occurred in some areas.

The areas chosen for the preserve center on areas are known to harbor large populations of ornate box turtles. These areas have been studied since 1998 by a team of researchers headed by Neil Bernstein of Mount Mercy College and Bob Black and Andy McCollum of Cornell College. The areas in the proposed preserve are known to be used for nesting by ornate box turtles and other reptiles. Further, these areas are not used for crops by the Iowa DNR, and the areas are being managed for natural vegetation. The division between the areas is land that is cropped.

### Greencastle:

The northeastern area, west of Greencastle Avenue is 131 acres of sand prairie and wetlands (Fig. 1). There is debate whether part of the sand prairie was seeded or whether it is native, but there is a section near the southern border that was definitely planted exclusively in switchgrass. A rectangular row of conifers appears to have been planted at some time with a few apple trees inside the area, and there is a grove of catalpa trees that might have been planted. The wetlands are natural and are not

maintained. Periodic controlled burns have been used as a management technique in this area, and some girdling of junipers has occurred.

### **Mallard Pools:**

The larger area to the south is notable for a series of sand dunes, some of which contain native prairie plant species. The main dune (south and east) at the Mallard Pools has only received fire maintenance with some clearing of junipers, however, the other dune (north and west) was planted exclusively in switchgrass prior to 1982. A third dune near the southern border is largely brome grass. Two large wetlands were created by a series of dikes, and a grove of pine trees was planted prior to 1982 on the northwest side of the main dune. Shrub habitat surrounds both dunes, and a low-lying, moist forest is present adjacent to the main dune and one of the wetlands. It is proposed that 171 acres be part of the preserve.

### **Species of Interest:**

Both areas contain a large population of ornate box turtles (*Terrapene ornata ornata*), a state threatened species. Since 1994, over 650 turtles have been marked in at the Mallard Pools and Greencastle. Blanding's turtles (*Emydoidea blandingii*), another state threatened species also nests in these areas (most common at Mallard Pools), and additional reptiles that are known to nest include painted turtles, bullsnakes, midland brown snakes, blue racers, eastern garter snakes, and western garter snakes. While ornate box turtles and Blanding's turtles exist in other parts of HWA and most of HWA contains an interesting diversity of organisms, the proposed preserve is centered in the areas that have been most studied. Ornate box turtles also use adjacent private property throughout the year, but no private properties are proposed for preserve status, at this time.

Amphibians that have been noted include tiger salamanders, chorus frogs, spring peepers, cricket frogs, northern leopard frogs, green frogs, and bullfrogs.

Among the rarer birds that nest are Yellow-breasted Chats, Bell's Vireos, American Woodcock, and Lark Sparrows. Migratory shorebirds and waterfowl often are seen in the wetlands, and several unusual migrants have been seen, most recently a King Rail. In the 1980s, a pair of Northern Harriers was often seen during the breeding season north of the westernmost Mallard Pool, and the manager feels that Sandhill Cranes may have stayed some summers on parts of the wildlife area.

In summer 2006, river otters were frequently seen at Mallard Pools. Trapping for small mammals in 1983 did not discover anything unusual.

The attached plant list indicates several rarer plants found in the proposed preserve around Mallard Pools as surveyed by Tom Madsen in 2005. The list is also an overall plant summary for both Greencastle and Mallard Pools.

### Replication of other preserves:

No other state preserve contains this concentration of reptiles, especially of ornate box and Blanding's turtles. Big Sand Mound contains a large population of ornate box turtles on a sand prairie, but this area is in private ownership. The closest state preserve to the proposed preserve is Williams Prairie State Preserve, a sedge meadow and wet prairie. Sand prairie habitat exists at Cedar Hills Sand Prairie and Marietta Sand Prairie State Preserves.

### LOCATION

The proposed preserve is in Johnson County, Oxford Township, and most of the area lies in parts of Sections 1 and 12.

### Approximate UTM Boundaries:

#### Greencastle:

North	East
3085.5	3289.5
3071.5	2251.1
2515.0	25005.7
2551.0	2561.1
2559.3	2849.1
2315.6	2860.2
2307.3	2295.0

#### Mallard Pools:

North	East
2428.7	2481.5
1481.2	2511.5
1468.4	1718.4
1867.1	1705.5
1918.5	1585.5
2107.2	1744.1
2201.5	1697.0
2351.5	2078.5
2420.1	2095.7

## SOILS

In general, the soils of the area are broadly considered to be part of the Nodaway-Lawson-Waukee association or the Fluvaquents association. The former are characterized as: nearly level, well drained to somewhat poorly drained soils formed in silty or loamy alluvium. The latter are characterized as: nearly level, poorly drained and very poorly drained soils formed in loamy silty and clayey alluvium.

Referring to the soil map (appendix):

- 41 Sparta Loamy fine sand, 0-2% slope
- 41B Sparta Loamy fine sand, 2-5% slope
- 41C Sparta Loamy fine sand, 5-9% slope
- 41D Sparta Loamy fine sand, 9-18% slope
- 63C Chelsea Loamy fine sand, 5-9% slope
- 140 Sparta Loamy fine sand, thick surface, 0-2% slope
- 141 Watseka Loamy fine sand, 0-2% slope
- 152 Marshan loam, 32 to 40 inches to sand and gravel, 0-2% slope
- 174B Bolan loam, 2-5% slope
- 175 Dickinson fine sandy loam, 0-2% slope
- 175B Dickinson fine sandy loam, 2-5% slope
- 178 Waukee loam, 0-2% slope
- 226 Lawler loam, 32-40 inches to sand and gravel, 0-2% slope
- 727 Udolpho loam, 0-2% slope
- 920B Tama silt loam, sandy substratum, 2-5% slope

Therefore, much of the proposed preserve is sandy and loamy, with very little slope.

## STRUCTURES AND FACILITIES

There are no existing structures or facilities on the proposed preserve area. A parking lot adjacent to Greencastle Avenue provides parking, and a dirt access road connects an unmaintained road to Mallard Pools. This access road is blocked by a gate.

A water control structure joins two wetlands at Mallard Pools, and these wetlands are separated and bordered by maintained dikes.

## MANAGEMENT OF ADJACENT LANDS AND LAND MANAGEMENT PRACTICES

The Iowa DNR is charged with management of the proposed preserve as well as land adjacent to the preserve that lies within the Hawkeye Wildlife Area. This management includes periodic fires and brush clearing for prairie management. At Mallard Pools, wetland management is also practiced, and drainage from private lands has also been enhanced by deepening drainage canals. In general, the terrestrial management practices should enhance the surrounding populations of non-game

species, especially the ornate box turtles, and the practices should be compatible with management on the preserve for these species. It is not known if wetland management affects any species of concern, and as long as wetlands are maintained, negative impacts are unlikely. Some of the land in Hawkeye Wildlife Area is planted into row crops that serve as feed and cover for game species. Although there are ornate box turtles in this area, it is not suggested that this area be part of the preserve because of the cultivation. Research has shown that there is ornate box turtle gene flow between the Mallard Pools and Greencastle, probably via sequential matings, but individual travel between the two areas has not been detected in ornate box turtles.

There is no long term management plan, and management goals are reviewed yearly. An example of the yearly management plan is included. In general, the area encompassed by the proposed preserve is on an approximate three year burn cycle where all of Greencastle or all of Mallard Pools are burned in a season.

In both the Greencastle and Mallard Pool areas, the proposed preserve is adjacent to private land, some of it actively farmed. At this time, relationship between turtle researchers and adjacent landowners is cordial.

There is a tile flowage easement with the Oldfather property to the south of Mallard Pools that includes maintaining the tile and the drainage ditch which extends from the southern border of the Mallard Pool dune into the westernmost Mallard Pool. It is not known if ornate box turtles cross the drainage ditch south of the main dune (where it is over 10 feet across), but it is known that they cross the ditch west of the main dune (where it is only 1-2 feet wide). At any rate, this does not appear to impact the ornate box turtles or any other vertebrate species.

Other management practices in place that will continue include: spraying for noxious weeds and invasive plants (including woody plants), removal of junipers and other woody invasives, clearing of woody invasives with a timberax and handcutting, and maintenance of the dike system around the Mallard Pools. Some of these practices involve driving heavy machinery through the area, but, overall, these practices all enhance biodiversity of the area.

## **MANAGEMENT OF VISITORS AND USE**

This would be unchanged from current policies at Hawkeye Wildlife Area. The public has access to all these areas, and much of the area is used by hunters, in season. Mushroom gatherers have also been encountered. With the exception of handicapped hunters, the area is off limits to motorized vehicles operated by the public without permission.

## **MANAGEMENT CLASSIFICATION AND MANAGEMENT ZONES**

At this time, the only additional management suggested is the cutting of the pine grove planted on the northwest end of the main dune at Mallard Pools. These pines, planted on a sand prairie, were established to stabilize the shifting sand dune. Land

managers around Iowa viewed such unstable dunes as a negative consequence of wind-exposed, fine-grained, sand deposits without realizing that disturbance sand prairie species depended upon these unstable dunes. The unstable dunes also slowed woody succession. In 1983, when the pines were less than six feet tall, several blowouts were noted on the main dune. Today, blowouts are not present and woody encroachment on the sand prairie is occurring. For the reptiles, the sand dune area is crucial for nesting and overwintering.

## APPENDICES

Fig. 1. Location of Hawkeye Wildlife Area in Johnson County

Fig. 2. Arial photo with proposed preserve boundaries

Fig. 3. Arial photo with location of rare plant species

Fig. 4. Soil map with proposed preserve boundaries and flood pool boundaries

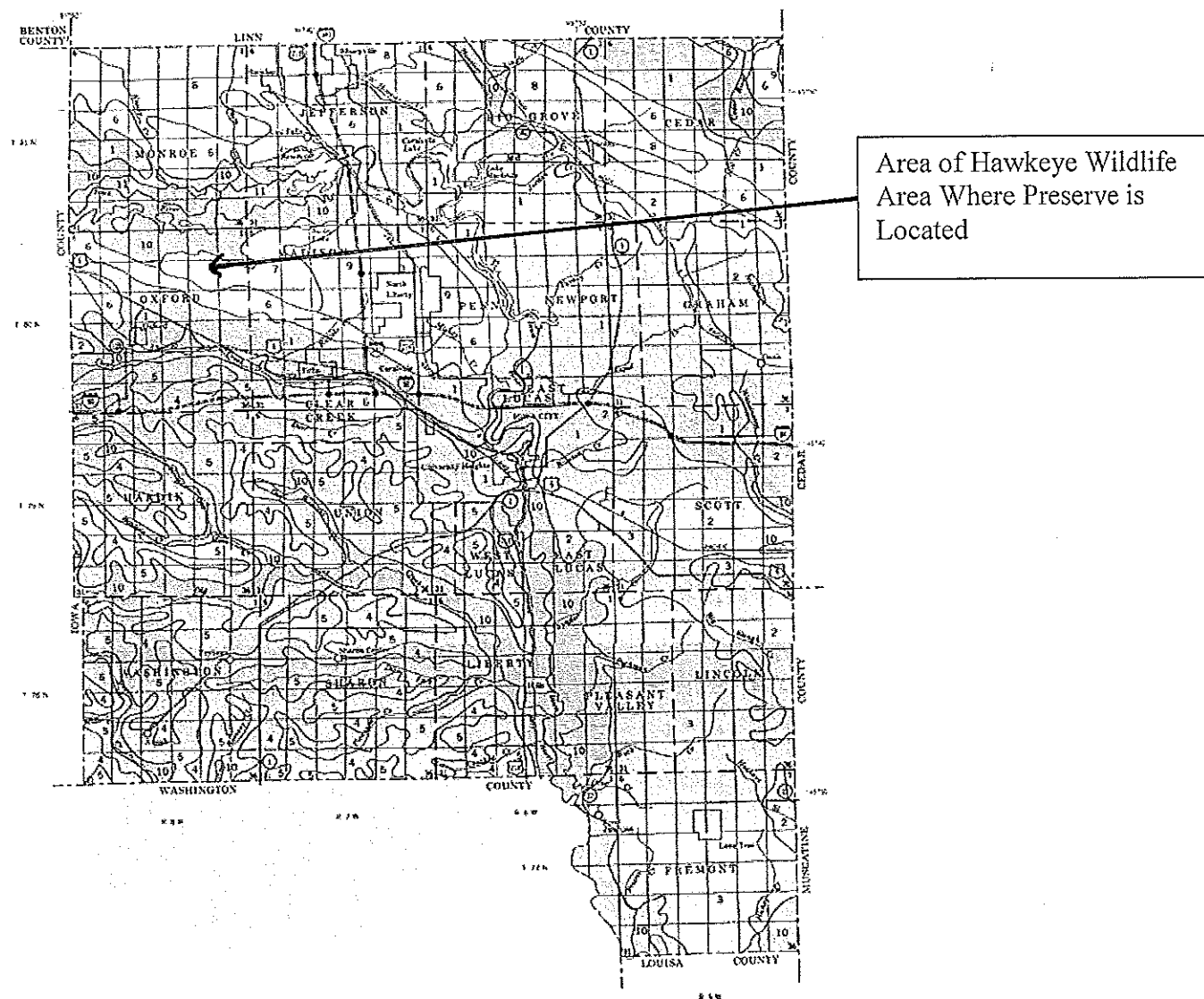
Plant List by Tom Madsen

Annual Management Plan Hawkeye Wildlife Area 01 July 2006 through 01 June 2007

Letter from U.S. Army Corps of Engineers



Fig. 1. Location of Hawkeye Wildlife Area on a Soil Map of Johnson County



# SOIL LEGEND

## AREAS DOMINATED BY SOILS FORMED IN SILTY MATERIALS, ON UPLANDS

- 1 Fayette-Downs association: Gently sloping to very steep, well drained soils formed in loess
- 2 Tama-Dows association: Gently sloping to strongly sloping, well drained soils formed in loess
- 3 Tama-Dows-Muscatine association: Nearly level to moderately sloping, well drained, poorly drained, and somewhat poorly drained soils formed in loess
- 4 Ladoga-Diley-Mahaska association: Nearly level to moderately sloping, moderately well drained and somewhat poorly drained soils formed in loess
- 5 Clinton-Ladoga association: Moderately sloping to strongly sloping, moderately well drained soils formed in loess

## AREAS DOMINATED BY SOILS FORMED IN SANDY, LOAMY, AND SILTY MATERIALS, ON UPLANDS

- 6 Chelsea-Lamont-Fayette association: Moderately sloping to very steep, well drained and excessively drained soils formed in loess or windblown sandy and loamy deposits
- 7 Sparta-Udolpho-Waukegan association: Nearly level to strongly sloping, excessively drained, well drained, and somewhat poorly drained or poorly drained soils formed in windblown sands and in loamy or silty deposits

## AREAS DOMINATED BY SOILS FORMED IN LOESS OR LOAMY SURFICIAL MATERIALS AND IN THE UNDERLYING GLACIAL TILL, ON UPLANDS

- 8 Russell-Kenyon-Dinsdale association: Gently sloping to strongly sloping, moderately well drained and well drained soils formed in loamy or silty materials and in the underlying glacial till
- 9 Dinsdale-Klinger-Franklin association: Very gently sloping to moderately sloping, well drained to somewhat poorly drained soils formed in loess and in the underlying glacial till

## AREAS DOMINATED BY SOILS FORMED IN SILTY, LOAMY, OR CLAYEY MATERIALS, OR LOW STREAM BENCHES AND BOTTOM LANDS

- 10 Nodaway-Lawson-Wauke association: Nearly level, well drained to somewhat poorly drained soils formed in silty or loamy alluvium
- 11 Fluviogluvis association: Nearly level, poorly drained and very poorly drained soils formed in loamy, silty, and clayey alluvium

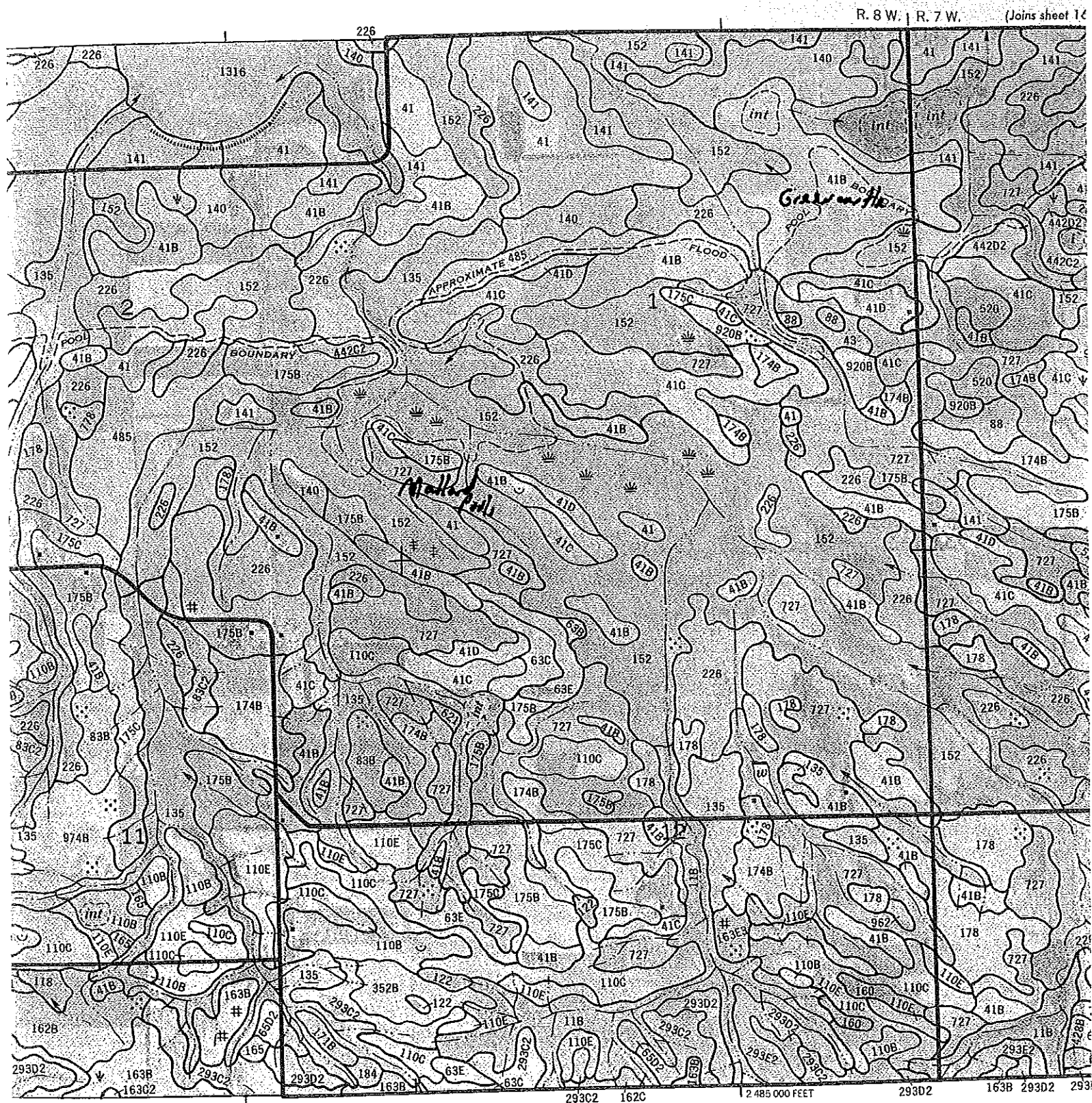
Compiled 1981

Fig 2.









## Plant List for the Hawkeye Wildlife Area near Greencastle Airport, Johnson County, Iowa

Species	Common Name	Family	Locality
<i>Acer negundo</i> L.	Box elder	Aceraceae	
<i>Acer saccharinum</i> L.	Silver maple	Aceraceae	
<i>Achillea millefolium</i> L.			
<i>ssp. lanulosa</i> (Nutt.) Piper	Yarrow	Asteraceae	
<i>Acorus calamus</i> L.	Sweet Flag	Araceae	
<i>Agalinus tenuifolia</i> (Vahl.) Raf.	Slender-leaf false foxglove	Scrophulariaceae	
<i>Agastache nepetoides</i> (L.) Kuntze.	Yellow giant-hyssop	Lamiaceae	
<i>Agastache scrophulariifolia</i> (Willd.) Kuntze	Purple giant-hyssop	Lamiaceae	Mallard Pools
<i>Agrostis gigantea</i> Roth	Black bent	Poaceae	
<i>Agrostis hyemalis</i> (Walt.) BSP.	Winter bent	Poaceae	
<i>Alisma plantago-aquatica</i> L.	Water plantain	Alismataceae	
<i>Alliaria petiolata</i> (Bieb.) Cavara & Grande	Garlic mustard	Brassicaceae	Mallard Pools, abundant in wooded area
<i>Ambrosia artemisiifolia</i> L.	Common ragweed	Asteraceae	
<i>Ambrosia psilostachya</i> DC.	Western ragweed	Asteraceae	
<i>Ambrosia trifida</i> L.	Giant ragweed	Asteraceae	
<i>Amorpha canescens</i> Pursh	Leadplant	Fabaceae	
<i>Amorpha fruticosa</i> L.	False indigo	Fabaceae	
<i>Amphicarpaea bracteata</i> (L.) Fern.	Hog peanut	Fabaceae	
<i>Androsace occidentalis</i> Pursh	Rock jasmine	Primulaceae	
<i>Anemone canadensis</i> L.	Canada anemone	Ranunculaceae	
<i>Anemone virginiana</i> L.	Tall anemone	Ranunculaceae	
<i>Antennaria neglecta</i> Greene	Pussytoes	Asteraceae	
<i>Antennaria plantaginifolia</i> (L.) Richardson	Ladies'-tobacco	Asteraceae	
<i>Apios americana</i> Medicus	Groundnut	Fabaceae	
<i>Apocynum sibiricum</i> Jacq.	Dogbane	Apocynaceae	
<i>Arctium minus</i> Bernh.	Burdock	Asteraceae	
<i>Asclepias amplexicaulis</i> Smith	Sand milkweed	Asclepiadaceae	
<i>Asclepias incarnata</i> L.	Swamp milkweed	Asclepiadaceae	
<i>Asclepias syriaca</i> L.	Common milkweed	Asclepiadaceae	
<i>Asclepias verticillata</i> L.	Whorled milkweed	Asclepiadaceae	
<i>Asplenium platyneuron</i> (L.) Oakes ex D. C.	Ebony spleenwort	Aspleniaceae	
<i>Aster ericoides</i> L.	Heath aster	Asteraceae	
<i>Aster falcatus</i> Lindl.	Forked aster	Asteraceae	
<i>Aster lanceolatus</i> Willd.	Paniced aster	Asteraceae	
<i>Aster novae-angliae</i> L.	New England aster	Asteraceae	

Based on inventories in 2004 by Thomas Madsen, Honor's Undergraduate in Environmental Sciences, University of Iowa.



## Plant List for the Hawkeye Wildlife Area near Greencastle Airport, Johnson County, Iowa

<i>Aster ontariensis</i> Wieg.	Ontario aster	Asteraceae	
<i>Aster puniceus</i> L.	Swamp aster	Asteraceae	
<i>Athyrium filix-femina</i> (L.) Roth	Lady fern	Dryopteridaceae	
var. <i>angustum</i> (Willd.) Moore			
<i>Barbarea vulgaris</i> R. Br.	Barberry	Brassicaceae	
<i>Betula nigra</i> L.	River birch	Betulaceae	
<i>Bidens cernua</i> L.	Nodding bur marigold	Asteraceae	
<i>Bidens connata</i> Muhl. ex Willd.	Crowned beggarticks	Asteraceae	
<i>Bidens coronata</i> (L.) Britt	Tickseed sunflower	Asteraceae	
<i>Bidens polylepis</i> Blake	Bearded beggarticks	Asteraceae	
<i>Bidens tripartita</i> L.	Three-lobed beggarticks	Asteraceae	
<i>Boltonia asteroides</i> (L.) L'Hér.	False aster	Asteraceae	
<i>Bouteloua curtipendula</i> (Michx.) Torrey	Side-oats grama	Poaceae	
<i>Bromus commutatus</i> Schrad.	Meadow brome	Poaceae	
<i>Bromus inermis</i> Leysser	Smooth brome	Poaceae	
<i>Calamagrostis canadensis</i>	Bluejoint	Poaceae	
<i>Caltha palustris</i> L.	Marsh marigold	Ranunculaceae	Mallard Pools, locally abundant along stream west of dune
<i>Campanula americana</i> L.	Tall bellflower	Campanulaceae	
<i>Campanula aparinoides</i> Pursh	Marsh bellflower	Campanulaceae	Mallard Pools
<i>Cannabis sativa</i> L.	Hemp	Moraceae	
<i>Capsella bursa-pastoris</i> (L.) Medicus	Shepherd's purse	Brassicaceae	
<i>Cardamine bulbosa</i> (Schreber) BSP.	Spring cress	Brassicaceae	
<i>Cardamine pennsylvanica</i> Muhl. ex Willd.	Bitter cress	Brassicaceae	
<i>Carex amphibola</i> Steudel			
var. <i>turgida</i> Fern.	Eastern narrow-leaf sedge	Cyperaceae	
<i>Carex annexans</i> (Bickn.) Bickn.	Yellow-fruit sedge	Cyperaceae	
<i>Carex bicknellii</i> Britt.	Bicknell's sedge	Cyperaceae	
<i>Carex blanda</i> Dewey	Eastern woodland sedge	Cyperaceae	
<i>Carex brevior</i> (Dewey) Mack. ex Lunell	Short-beak sedge	Cyperaceae	
<i>Carex cephalophora</i> Willd.	Oval-leaf sedge	Cyperaceae	
<i>Carex conoidea</i> Schkuhr ex Willd.			
	Open field sedge	Cyperaceae	Mallard Pools, fairly abundant on prairie along SE margin of N pond
<i>Carex cristatella</i> Britton	Crested sedge	Cyperaceae	
<i>Carex davisi</i> Schwein. & Torrey	Davis' sedge	Cyperaceae	
<i>Carex gravida</i> Bailey	Heavy sedge	Cyperaceae	

Based on inventories in 2004 by Thomas Madsen, Honor's Undergraduate in Environmental Sciences, University of Iowa.

# Plant List for the Hawkeye Wildlife Area near Greencastle Airport, Johnson County, Iowa

<i>Carex leavenworthii</i> Dewey	Leavenworth's sedge	Cyperaceae	
<i>Carex pensylvanica</i> Lam.	Pennsylvania sedge	Cyperaceae	
<i>Carex rosea</i> Schkuhr ex Willd.	Rosy sedge	Cyperaceae	
<i>Carex scoparia</i> Schkuhr ex Willd.	Pointed broom sedge	Cyperaceae	
<i>Carex stipata</i> Muhl. ex Willd.	Stalk-grain sedge	Cyperaceae	
<i>Carex stricta</i> Lam.	Upright sedge	Cyperaceae	
<i>Carex vesicaria</i> L.	Lesser bladder sedge	Cyperaceae	
<i>Catalpa speciosa</i> (Warder) Warder ex Engelm.	Cigar tree	Bigoniaceae	
<i>Celastrus scandens</i> L.	Bittersweet	Celastraceae	
<i>Celtis occidentalis</i> L.	Hackberry	Ulmaceae	
<i>Cenchrus longispinus</i> (Hackel) Fern.	Sandbur	Poaceae	
<i>Cephalanthus occidentalis</i> L.	Buttonbush	Rubiaceae	
<i>Cerastium vulgatum</i> L.	Mouse-ear chickweed	Caryophyllaceae	
<i>Ceratophyllum demersum</i> L.	Coontail	Ceratophyllaceae	
<i>Chaerophyllum procumbens</i> (L.) Crantz	Chervil	Apiaceae	
<i>Chamaecrista fasciculata</i> (Michx.) Greene	Partridge pea	Fabaceae	
			Mallard Pools, very abundant on wet meadow directly west of dune. Also present sparingly on wet meadow east of dune.
<i>Chelone glabra</i> L.	White turtlehead	Scrophulariaceae	
<i>Chenopodium berlandieri</i> Moq.	Pit-seed goosefoot	Chenopodiaceae	
<i>Chenopodium desiccatum</i> A. Nelson	Narrow-leaved goosefoot	Chenopodiaceae	
<i>Cicuta maculata</i> L.	Water hemlock	Apiaceae	
<i>Circaea lutetiana</i> L.			
<i>ssp. canadensis</i> (L.) Ascherson & Magnus	Enchanter's nightshade	Onagraceae	
<i>Cirsium discolor</i> (Muhl. ex Willd) Sprengel	Field thistle	Asteraceae	
<i>Commelina communis</i> L.	Day-flower	Commelinaceae	
<i>Conyza canadensis</i> (L.) Cronq.	Horseweed	Asteraceae	
<i>Cornus drummondii</i> C. A. Meyer	Rough-leaved dogwood	Cornaceae	
<i>Cornus foemina</i> P. Miller			
<i>ssp. racemosa</i> (Lam.) J. S. Wilson	Gray dogwood	Cornaceae	
<i>Cryptotaenia canadensis</i> (L.) DC.	Honewort	Apiaceae	
<i>Cuscuta coryli</i> Engelm.	Dodder	Convolvulaceae	
<i>Cyperus filiculmis</i> Vahl	Flat sedge	Cyperaceae	
<i>Cyperus schweinitzii</i> Torrey	Sand flat sedge	Cyperaceae	
<i>Cyperus strigosus</i> L.	Straw-color flat sedge	Cyperaceae	

## Plant List for the Hawkeye Wildlife Area near Greencastle Airport, Johnson County, Iowa

<i>Dalea purpurea</i> Vent.	Purple prairie clover	Fabaceae	
<i>Daucus carota</i> L.	Queen Anne's Lace	Apiaceae	
<i>Desmodium canadense</i> (L.) DC.	Showy tick-trefoil	Fabaceae	
<i>Dianthus armeria</i> L.	Deptford pink	Caryophyllaceae	
<i>Dichanthelium acuminatum</i> (Sw.) Gould & Clark var. <i>implicatum</i> (Scribner) Gould & Clark	Tapered rosette-grass	Poaceae	
<i>Dichanthelium acuminatum</i> (Sw.) Gould & Clark var. <i>lindheimeri</i> (Nash) Gould & Clark	Tapered rosette-grass	Poaceae	
<i>Dichanthelium clandestinum</i> (L.) Gould	Deertongue grass	Poaceae	
<i>Dichanthelium oligosanthes</i> (Schultes) Gould var. <i>scribnerianum</i> (Nash) Gould	Heller's rosette grass	Poaceae	
<i>Dichanthelium sabulorum</i> (Lam.) Gould & Clark var. <i>patulum</i> (Scribner & Merr.) Gould & Clark	Hemlock rosette grass	Poaceae	
<i>Echinacea pallida</i> (Nutt.) Nutt.	Pale coneflower	Asteraceae	
<i>Echinacea purpurea</i> (L.) Moench	Purple coneflower	Asteraceae	
<i>Echinocloa muricata</i> (Beauv.) Fern.	Rough barnyard grass	Poaceae	
<i>Elaeagnus umbellata</i> Thunb.	Autumn olive	Elaeagnaceae	
<i>Eleocharis obtusa</i> (Willd.) J.A. Schultes	Blunt spike-rush	Cyperaceae	
<i>Eleocharis smallii</i> Britton	Common spike-rush	Cyperaceae	
<i>Elisia nyctelea</i> L.	Waterpod	Hydrophyllaceae	
<i>Elymus canadensis</i> L.	Canada wild rye	Poaceae	
<i>Equisetum arvense</i> L.	Common horsetail	Equisetaceae	
<i>Equisetum laevigatum</i> A. Br.	Smooth scouring-rush	Equisetaceae	
<i>Eragrostis spectabilis</i> (Pursh) Steudel	Purple lovegrass	Poaceae	
<i>Erechtites hieracifolia</i> (L.) Raf. ex DC.	Fireweed	Asteraceae	
<i>Erigeron philadelphicus</i> L.	Fleabane	Asteraceae	
<i>Erigeron strigosus</i> Muhl. ex Willd.	Daisy fleabane	Asteraceae	
<i>Eupatorium altissimum</i> L.	Tall thoroughwort	Asteraceae	
<i>Eupatorium maculatum</i> L.	Spotted Joe-Pye-weed	Asteraceae	
<i>Eupatorium perfoliatum</i> L.	Boneset	Asteraceae	
<i>Eupatorium serotinum</i> Michx.	Late boneset	Asteraceae	
<i>Euphorbia corollata</i> L.	Flowering spurge	Euphorbiaceae	
<i>Euphorbia nutans</i> Lag.	Nodding spurge	Euphorbiaceae	
<i>Euthamia graminifolia</i> (L.) Nutt. ex Cass.	Flat-top goldenrod	Asteraceae	



## Plant List for the Hawkeye Wildlife Area near Greencastle Airport, Johnson County, Iowa

<i>Fragaria virginiana</i> Duchesne	Wild strawberry	Rosaceae	
<i>Fraxinus pennsylvanica</i> Marsh	Green ash	Oleaceae	
var. <i>lanceolata</i> (Borkh.) Sarg.	Cleavers	Rubiaceae	
<i>Galium aparine</i> L.	Stiff bedstraw	Rubiaceae	
<i>Galium tinctorium</i> L.	Small bedstraw	Rubiaceae	
<i>Galium triflorum</i> Michx.	Bottle gentian	Gentianaceae	Mallard pools, wet meadow directly east of dune
<i>Gentiana andrewsii</i> Griseb.	White avens	Rosaceae	
<i>Geum canadense</i> Jacq.	Rough avens	Rosaceae	
<i>Geum laciniatum</i> Murray	Honey locust	Fabaceae	
<i>Gleditsia triacanthos</i> L.	Fowl manna grass	Poaceae	
<i>Glyceria striata</i> (Lam.) A. S. Hitchc.	Everlasting	Asteraceae	
<i>Gnaphalium obtusifolium</i> L.	Stickseed	Boraginaceae	
<i>Hackelia virginiana</i> (L.) I. M. Johnston	Rough pennyroyal	Lamiaceae	
<i>Hedeoma hispidum</i> Pursh	Sneezeweed	Asteraceae	
<i>Helenium autumnale</i> L.	Saw-tooth sunflower	Asteraceae	
<i>Helianthus grosseratus</i> Martens	Maximilian's sunflower	Asteraceae	
<i>Helianthus maximiliani</i> Schrader	Pale-leaved sunflower	Asteraceae	
<i>Helianthus strumosus</i> L.	Daylily	Liliaceae	
<i>Hemerocallis fulva</i> (L.) L.	Dame's rocket	Brassicaceae	
<i>Hesperis matronalis</i> L.	Japanese hops	Moraceae	
<i>Humulus japonicus</i> Sieb. & Zucc.	Weak St. John's wort	Hypericaceae	
<i>Hypericum mutilum</i> L.	Round-fruited St. John's wort	Hypericaceae	
<i>Hypericum sphaerocarpum</i> Michx.	Eastern yellow star-grass	Iridaceae	
<i>Hypoxis hirsuta</i> (L.) Cov.	Spotted touch-me-not	Balsaminaceae	
<i>Impatiens capensis</i> Meerb.	Inland rush	Juncaceae	
<i>Juncus interior</i> Wieg.	Red cedar	Cupressaceae	
<i>Juniperus virginiana</i> L.	Wild lettuce	Asteraceae	
<i>Lactuca canadensis</i> L.	Blue lettuce	Asteraceae	
<i>Lactuca floridana</i> (L.) Gaertner	Wood nettle	Urticaceae	
<i>Laportea canadensis</i> (L.) Wedd.			
<i>Lechea stricta</i> Leggett ex Britt.	Pin weed	Cistaceae	Mallard pools. Large, localized population on dune
<i>Leersia oryzoides</i> (L.) Sw.	Rice cut-grass	Poaceae	
<i>Leersia virginica</i> Willd.	Whitegrass	Poaceae	
<i>Lemna minor</i> L.	Duckweed	Lemnaceae	
<i>Leonurus cardiaca</i> L.	Motherwort	Lamiaceae	

## Plant List for the Hawkeye Wildlife Area near Greencastle Airport, Johnson County, Iowa

<i>Lepidium campestre</i> (L.) R. Br.	Field cress	Brassicaceae	
<i>Lepidium virginicum</i> L.	Poor-man's pepper	Brassicaceae	
<i>Leptoloma cognatum</i> (Schultes) Chase	Fall witchgrass	Poaceae	
<i>Lespedeza capitata</i> Michx.	Round-headed bush clover	Fabaceae	
<i>Lithospermum carolinense</i> (Walter) MacM.	Hairy puccoon	Boraginaceae	
<i>Lobelia siphilitica</i> L.	Great lobelia	Campanulaceae	
<i>Lonicea maackii</i> (Rupr.) Herder	Amur honeysuckle	Caprifoliaceae	
<i>Ludwigia alternifolia</i> L.	Seedbox	Onagraceae	
<i>Lycopus americanus</i> Muhl. ex Barton	Water horehound	Lamiaceae	
<i>Lythrum alatum</i> Pursh	Winged loosestrife	Lythraceae	
<i>Malus domestica</i> L.	Apple	Rosaceae	
<i>Medicago sativa</i> L.	Alfalfa	Fabaceae	
<i>Melanthium virginicum</i> (L.) Ait. f.	Bunch-flower	Liliaceae	Mallard pools, approximately 12 plants on wet meadow directly west of dune
<i>Melilotus alba</i> Medicus	White sweet clover	Fabaceae	
<i>Melilotus officinalis</i> (L.) Pallas	Yellow sweet clover	Fabaceae	
<i>Menispermum canadense</i> L.	Canada moonseed	Menispermaceae	
<i>Mentha arvensis</i> L.	Wild mint	Lamiaceae	
<i>Mimulus ringens</i> L.	Monkey flower	Scrophulariaceae	
<i>Monarda fistulosa</i> L.	Wild bergamot	Lamiaceae	
<i>Morus alba</i> L.	White mulberry	Moraceae	
<i>Muhlenbergia racemosa</i> (Michx.) BSP.	Marsh muhly	Poaceae	
<i>Muhlenbergia sylvatica</i> (Torrey) Torrey ex Gray	Forest muhly	Poaceae	
<i>Nepeta cataria</i> L.	Catnip	Lamiaceae	
<i>Oenothera rhombipetala</i> Nutt. ex T. & G.	Sand primrose	Onagraceae	
<i>Onoclea sensibilis</i> L.	Sensitive fern	Dryopteridaceae	
<i>Opuntia humifusa</i> (Raf.) Raf.	Eastern prickly pear	Cactaceae	Mallard pools, approximately 5 plants on dune
<i>Oxalis stricta</i> L.	Yellow wood sorrel	Oxalidaceae	
<i>Oxypolis rigidior</i> (L.) Raf.	Cowbane	Apiaceae	Mallard Pools, wet meadow directly west of dune
<i>Panicum virgatum</i> L.	Switchgrass	Poaceae	
<i>Parietaria pensylvanica</i> Muhl. ex Willd.	Pellitory	Urticaceae	
<i>Parthenocissus vitacea</i> (Kner) A. S. Hitchc.	Woodbine	Vitaceae	
<i>Paspalum setaceum</i> Michx.			
<i>Paspalum setaceum</i> Michx. var. <i>ciliatolium</i> (Michx.) Vasey	Bead grass	Poaceae	
<i>Paspalum setaceum</i> (Nash) Fern.	Bead grass	Poaceae	

Based on inventories in 2004 by Thomas Madsen, Honor's Undergraduate in Environmental Sciences, University of Iowa.

## Plant List for the Hawkeye Wildlife Area near Greencastle Airport, Johnson County, Iowa

<i>Pastinaca sativa</i> L.	Wild parsnip	Apiaceae	
<i>Pedicularis lanceolata</i> Michx.	Swamp lousewort	Scrophulariaceae	Mallard pools, wet meadow directly east of dune
<i>Penstemon digitalis</i> Nutt.	Foxglove penstemon	Scrophulariaceae	
<i>Penthorum sedoides</i> L.	Ditch stonecrop	Saxifragaceae	
<i>Phalaris arundinacea</i> L.	Reed canary grass	Poaceae	
<i>Phleum pratense</i> L.	Timothy	Poaceae	
<i>Phlox maculata</i> L.	Wild sweetwilliam	Polemoniaceae	Mallard Pools, wet meadow directly west of dune
<i>Physalis heterophylla</i> Nees	Clammy ground cherry	Solanaceae	
<i>Physalis virginiana</i> P. Miller	Virginia ground cherry	Solanaceae	
<i>Physostegia parviflora</i> Nutt. ex Gray	Obedient plant	Lamiaceae	
<i>Phytolacca americana</i> L.	Pokeweed	Phytolaccaceae	
<i>Pinus banksiana</i> Lamb.	Jack pine	Pinaceae	
<i>Pinus resinosa</i> Ait.	Red pine	Pinaceae	
<i>Pinus strobus</i> L.	White pine	Pinaceae	
<i>Plantago aristata</i> Michx.	Bracted plantain	Plantaginaceae	
<i>Plantago patagonica</i> Jacq.	Woolly plantain	Plantaginaceae	
<i>Plantago rugelii</i> Dene.	Common plantain	Plantaginaceae	
<i>Poa pratensis</i> L.	Kentucky bluegrass	Poaceae	
<i>Polemonium reptans</i> L.	Jacob's ladder	Polemoniaceae	
<i>Polygala sanguinea</i> L.	Field milkwort	Polygalaceae	
<i>Polygonum amphibium</i> L.	Water smartweed	Polygonaceae	
<i>Polygonum convolvulus</i> L.	Black bindweed	Polygonaceae	
<i>Polygonum erectum</i> L.	Erect knotweed	Polygonaceae	
<i>Polygonum pennsylvanicum</i> L.			
var. <i>laevigatum</i> Fern.	Pinkweed	Polygonaceae	
<i>Polygonum persicaria</i> L.	Lady's thumb	Polygonaceae	
<i>Polygonum punctatum</i> Eil.	Water smartweed	Polygonaceae	
<i>Polygonum sagittatum</i> L.	Teardumb	Polygonaceae	
<i>Populus deltoides</i> Bartram ex Marsh.	Cottonwood	Salicaceae	
<i>Potamogeton</i> sp.	Pondweed	Potamogetonaceae	
<i>Potentilla simplex</i> Michx.	Common cinquefoil	Rosaceae	
<i>Prunella vulgaris</i> L.	Self heal	Lamiaceae	
<i>Prunus serotina</i> Ehrh.	Black cherry	Rosaceae	
<i>Pycnanthemum pilosum</i> Nutt.	Hairy mountain mint	Lamiaceae	
<i>Pycnanthemum tenuifolium</i> Schrader	Narrow-leaf mountain mint	Lamiaceae	

## Plant List for the Hawkeye Wildlife Area near Greencastle Airport, Johnson County, Iowa

<i>Pycnanthemum virginianum</i> (L.) Dur. & Jackson	Slender mountain mint	Lamiaceae	
<i>Ranunculus abortivus</i> L.	Small-flowered crowfoot	Ranunculaceae	
<i>Ranunculus sceleratus</i> L.	Cursed crowfoot	Ranunculaceae	
<i>Ratibida pinnata</i> (Vent.) Barnh.	Gray-headed coneflower	Asteraceae	
<i>Rhus glabra</i> L.	Smooth sumac	Anacardiaceae	
<i>Ribes missouriense</i> Nutt. ex T. & G.	Gooseberry	Saxifragaceae	
<i>Rorippa palustris</i> (L.) Besser	Marsh cress	Brassicaceae	
<i>Rosa carolina</i> L.	Pasture rose	Rosaceae	
<i>Rosa multiflora</i> Thunb. ex Murray	Multiflora rose	Rosaceae	
<i>Rubus ablatius</i> Bailey	Blackberry	Rosaceae	
<i>Rubus allegheniensis</i> Porter ex Bailey	Blackberry	Rosaceae	
<i>Rubus occidentalis</i> L.	Black raspberry	Rosaceae	
<i>Rudbeckia hirta</i> L.	Black-eyed susan	Asteraceae	
<i>Rudbeckia submontosa</i> Pursh	Fragrant coneflower	Asteraceae	
<i>Rumex acetosella</i> L.	Red sorrel	Polygonaceae	
<i>Rumex altissimus</i> Wood	Pale dock	Polygonaceae	
<i>Sagittaria</i> sp.	Arrowhead	Alismataceae	
<i>Salix discolor</i> Muhl.	Pussy willow	Salicaceae	Mallard Pools
<i>Salix nigra</i> Marsh.	Black willow	Salicaceae	
<i>Salix rigida</i> Muhl.	Missouri willow	Salicaceae	
<i>Sambucus canadensis</i> L.	Elderberry	Caprifoliaceae	
<i>Sanicula canadensis</i> L.	Black snakeroot	Apiaceae	
<i>Saxifraga pennsylvanica</i> L.	Swamp saxifrage	Saxifragaceae	Mallard Pools, wet meadow directly west of dune
<i>Scirpus atrovirens</i> Willd.	Dark-green bulrush	Cyperaceae	
<i>Scirpus cyperinus</i> (L.) Kunth	Cottongrass bulrush	Cyperaceae	
<i>Scirpus pendulus</i> Muhl.	Rufous bulrush	Cyperaceae	
<i>Scirpus validus</i> Vahl. var. <i>creber</i> Fern.	Soft-stem club-rush	Cyperaceae	
<i>Scleria triglomerata</i> Michx.	Tall nut-rush	Cyperaceae	Mallard Pools, localized population along northeast margin of north pond
<i>Scrophularia marilandica</i> L.	Figwort	Scrophulariaceae	
<i>Scutellaria galericulata</i> L.	Skullcap	Lamiaceae	
<i>Senecio platensis</i> Nutt.	Prairie ragwort	Asteraceae	
<i>Setaria faberi</i> Herrm.	Giant foxtail	Poaceae	
<i>Setaria viridis</i> (L.) Beauv.	Green foxtail	Poaceae	

## Plant List for the Hawkeye Wildlife Area near Greencastle Airport, Johnson County, Iowa

<i>Sicyos angulatus</i> L.	Bur cucumber	Cucurbitaceae	
<i>Silene antirrhina</i> L.	Sleepy catchfly	Caryophyllaceae	
<i>Silene pratensis</i> (Rafn) Gren. & Godron	White campion	Caryophyllaceae	
<i>Sisyrinchium campestre</i> Bickn.	Blue-eyed grass	Iridaceae	
<i>Smilax hispida</i> Muhl.	Greenbriar	Liliaceae	
<i>Solanum carolinense</i> L.	Horse nettle	Solanaceae	
<i>Solidago canadensis</i> L.	Tall goldenrod	Asteraceae	
<i>Sorghastrum nutans</i> (L.) Nash	Indian grass	Poaceae	
<i>Sparganium</i> sp.	Bur reed	Sparganiaceae	
<i>Spartina pectinata</i> Link	Cord grass	Poaceae	
<i>Sphenopholis obtusata</i> (Michx.) Scribner			
var. <i>major</i> (Torrey) K. S. Erdman	Wedge grass	Poaceae	
<i>Sphenopholis obtusata</i> (Michx.) Scribner			
var. <i>obtusata</i>	Wedge grass	Poaceae	
<i>Spiraea alba</i> Du Roi	Meadowsweet	Rosaceae	
<i>Spirodela polyrrhiza</i> (L.) Schleidon	Greater duckweed	Lemnaceae	
<i>Sporobolus cryptandrus</i> (Torrey) Gray	Sand dropseed	Poaceae	
<i>Stachys palustris</i> L.	Woundwort	Lamiaceae	
<i>Taraxacum officinale</i> Weber	Dandelion	Asteraceae	
<i>Teucrium canadense</i> L.			
var. <i>virginicum</i> (L.) Eaton	American germander	Lamiaceae	
<i>Thalictrum dasycarpum</i> Fischer & Ave-Lall.	Purple meadow-rue	Ranunculaceae	
<i>Thelypteris palustris</i> Schott			
var. <i>pubescens</i> (Lawson) Fern.	Marsh fern	Thelypteridaceae	
<i>Thlaspi arvense</i> L.	Penny cress	Brassicaceae	
<i>Toxicodendron radicans</i> P. Miller	Poison ivy	Anacardiaceae	
<i>Tradescantia ohienensis</i> Raf.	Spiderwort	Commelinaceae	
<i>Tridens flavus</i> (L.) A.S. Hitchc.	Purple top	Poaceae	
<i>Trifolium pratense</i> L.	Red clover	Fabaceae	
<i>Trifolium repens</i> L.	White clover	Fabaceae	
<i>Urtica dioica</i> L.	Nettle	Urticaceae	
<i>Verbascum blattaria</i> L.	Moth mullein	Scrophulariaceae	
<i>Verbascum thapsus</i> L.	Common mullein	Scrophulariaceae	
<i>Verbena hastata</i> L.	Blue vervain	Verbenaceae	
<i>Verbena stricta</i> Vent.	Hoary vervain	Verbenaceae	
<i>Verbena urticifolia</i> L.	White vervain	Verbenaceae	

Based on inventories in 2004 by Thomas Madsen, Honor's Undergraduate in Environmental Sciences, University of Iowa.

## Plant List for the Hawkeye Wildlife Area near Greencastle Airport, Johnson County, Iowa

<i>Vernonia fasciculata</i> Michx.	Ironweed	Asteraceae	
<i>Veronica arvensis</i> L.	Corn speedwell	Scrophulariaceae	
<i>Veronica peregrina</i> L.	Neckweed	Scrophulariaceae	
<i>Veronicastrum virginicum</i> (L.) Farw.	Culver's root	Scrophulariaceae	
<i>Viola pratincola</i> Greene	Common blue violet	Violaceae	
<i>Vitis riparia</i> Michx.	Riverbank grape	Vitaceae	
<i>Zanthoxylum americanum</i> P. Miller	Prickly ash	Rutaceae	
<i>Zizia aurea</i> (L.) Koch	Golden alexanders	Apiaceae	
<i>Liparis liliifolia</i> (L.) L. C. Rich. ex Lindley	Twayblade	Orchidaceae	Private land along western margin of Mallard pools
<i>Liparis loeselii</i> (L.) L. C. Rich.	Bog twayblade	Orchidaceae	Private land along western margin of Mallard pools

### Mosses:

*Helodium blandowii* (Web. & Mohr) Warnst.

Localized population on wet meadow directly east of dune-Mallard Pools

**ANNUAL MANAGEMENT PLAN**

**HAWKEYE WILDLIFE AREA**

**01 JULY 2006 through 30 JUNE 2007**

## ANNUAL MANAGEMENT PLAN

### HAWKEYE WILDLIFE AREA

01 JULY 2006 through 30 JUNE 2007

#### I. INTRODUCTION

The Hawkeye Wildlife Area is located within the upper reaches of the Coralville Reservoir on the floodplain of the Iowa River, Johnson County, Iowa. This area is under license from the U.S. Army Corps of Engineers, Rock Island District, for the propose of wildlife and fisheries management.

This report discusses work activities and estimated expenditures planned for the fiscal year 01 July 2006 through 30 June 2007 at the Hawkeye Wildlife Area. Estimated Condition Five and State expenditures are identified separately. Engineering plans and specifications will be submitted where necessary prior to actual development. Because of the age of this project, emphasis is now being placed on maintenance and repairs.

#### II. PLANS AND ESTIMATED COSTS

##### 1. Buildings

Landscaping and minor repairs will be completed around the residence and the headquarters building. Repair work is needed on two brick chimneys and the front porch of the residence. All of this brickwork will probably be completed at the same time. Utilities are paid with State funds. Condition Five funds will be used for building repairs.

Estimated Condition Five Expenditures for Development	\$	1,000.00
Estimated Condition Five Expenditures for Maintenance	\$	6,000.00

Estimated State Expenditures for Maintenance	\$	4,500.00
--	----	----------

##### 2. Dams, Dikes and Levees

Most dikes and dams are in fair to good shape and only minor repairs should be needed. Plum Creek inlet structure needs major repair after 1998 flooding. The control structures at Mallard I and Island Marsh will be replaced. Existing dikes will be mowed and kept in good repair. Condition Five monies will be used for repairs.



Plans for two subimpoundments to the west of the Plum Creek subimpoundment were completed and were re-bid in 2005. These two subimpoundments would add approximately 500 acres of marsh habitat in the northwest portion of the Hawkeye Area. Archaeological sites were noted the day the contractor was ready to start work in October 2005. If the concerns over the archaeological sites are resolved, work could resume in 2006. A combination of funds will be used to pay for these impoundments. Depending on funding and archaeology findings, the west subimpoundment (#6) may have to be built first with the east subimpoundment (#5) being constructed later. General locations of these sites are shown on Exhibit D.

Estimated Condition Five Expenditures for Development	\$ 100,000.00
Estimated Condition Five Expenditures for Maintenance	\$ 15,000.00
Estimated State Expenditures for Development	\$ 750,000.00
Estimated State Expenditures for Maintenance	\$ 9,000.00

### 3. Roads and Trails

Access roads will be bladed and resurfaced with roadstone where necessary. We anticipate applying 400 to 500 tons to keep them in good shape. Hauling riprap for bank stabilization will continue in tract H-765 where the Iowa River is threatening to wash out the road. Road shoulders on approximately 1,000 feet of roads will be cleared of woody vegetation, reshaped and seeded down with grass. Ditches and culverts will be cleaned as necessary to facilitate drainage. Condition Five funds will be used for contracting some of this ditch cleaning. Farm access lanes will continue to be improved as dozer work is being done on adjacent areas. Roadside barricades and gates will be maintained to prevent undesirable vehicle access.

With the development of the two new subimpoundments, a road will be built to provide access. This will basically follow the existing farm access lane. This will come off of County Road F-20 (Amana Road) through the existing parking lot in tract H-724 and go south and west in this tract.

Estimated Condition Five Expenditures for Development	\$ 4,000.00
Estimated Condition Five Expenditures for Maintenance	\$ 15,000.00
Estimated State Expenditure for Development	\$ 15,000.00
Estimated State Expenditure for Maintenance	\$ 9,000.00

#### 4. Public Use Facilities

Parking lots will be bladed or mowed as needed. Existing parking lots will be rocked and improved as necessary. Boat ramps and access channels will be maintained to permit public use. A cement boat ramp is being planned on the Greencastle Road on the north side of the Iowa River. DNR engineering will be developing a plan for a cement boat for this access. As a result of the new water level plan, the Babcock access and boat ramps go under water with one-foot fall level fluctuations. It is proposed to move this parking area to the south on higher ground along the existing road and put in a new boat ramp. This will be in Tract G-638 and has been reviewed by the Corps archaeology office. Babcock access is the main waterfowl hunter access and a popular fishing spot. Another parking lot will be developed at the dike separating the two new subimpoundments in either tract H-724 or H-725. Boat ramps will then be constructed to provide access to each of the subimpoundments. Surveying was done on the Greencastle and Babcock areas in 2004. Engineering plans will be submitted when they are completed. We plan to use marine fuel tax for the boat ramp projects but this fund has been held to a minimum by the State budget allocations. Condition Five monies will be used to purchase roadstone, and to rent equipment or pay for contracts for improvements to the parking lots.

The DNR has been working on an unsupervised shooting range for rifles and pistols at the existing shooting area on the north side by Greencastle corner. A contract in 2005 resulted in completing the dirt work for the 50-yard range. Having these facilities will concentrate all target shooting in one area, thus, resulting a safer area for all users. A combination of state, Condition Five and donated money has been used for this project. We have contacted private groups and individuals to sponsor shooting benches and other materials. Fencing around the range will be completed by DNR personnel or by contract.

Estimated Condition Five Expenditures for Development	\$ 5,000.00
Estimated Condition Five Expenditures for Maintenance	\$ 2,000.00
Estimated State Expenditures for Development	\$ 50,000.00
Estimated State Expenditures for Maintenance	\$ 3,200.00

5. Signs, Boundary Markers, and Encroachments

Existing boundary and informational signs will be replaced as necessary. Signs will be posted to provide information and regulations at popular parking lots and access points. One waterfowl refuge is posted as shown in Exhibit A. Encroachments will be checked when discovered or as they turn up during our annual boundary inspection. Approximately 1/5 of the boundary is scheduled to be checked each year. The proposed boundary to be checked this year is shown on Exhibit B. Julie Tobias is assigned the responsibility of checking these boundaries. Tim Thompson, wildlife biologist, or Dennis Proctor, natural resource technician II, will follow up any encroachments found. Tobias is funded by Condition Five; estimated costs for walking boundaries and replacing signs are \$900.00.

Estimated State Expenditures for Development	\$ 3,800.00
--	-------------

6. Trees and Shrubs

Approximately 500 trees and shrubs will be planted along some existing field windbreaks and in some gaps in existing field windbreaks. Some small oak trees will be planted to replace trees lost in tract F-550. A ground cover mix will be seeded down between the rows and maintenance will be done by mowing and by applying herbicide to reduce weed competition. Condition Five monies will be used to pay for part of the nursery stock.

Estimated Condition Five Expenditures for Development	\$ 500.00
---	-----------

Estimated State Expenditures for Development	\$ 2,600.00
--	-------------

7. Herbaceous Seedings

Approximately 40 acres of food plots and legume fields are planted and rotated in addition to existing agricultural leases. Japanese millet will be seeded on mud flats in July/August should high water reduce the natural growth of smartweed. Millet seed provides a substitute when natural foods are lacking. It may be necessary to aerial seed winter wheat on mud flats if late summer floods occur. Because of the new water level plan, additional areas may be seeded to millet or buckwheat that in the past were winter wheat fields. Up to 100 acres may be planted to winter wheat for geese through contract if crop-share agreements cannot be negotiated. Fertilizer and some seed cost will come from Condition Five monies.

Estimated Condition Five Expenditures for Development	\$ 3,500.00
---	-------------

Estimated State Expenditures for Development	\$ 3,500.00
--	-------------

#### 8. Clearings

Brush invading grasslands managed as nesting cover will continue to be removed by mowing or hand cutting or burning. These areas are all in the main waterfowl refuge and these willow areas hamper goose management, as geese desire open fields to feed in. Restoring these fields to winter wheat will greatly enhance goose management. Willows will be removed from grass strips between crop fields in tracts I-821, I-825, I-826, and I-827. Stumps will be removed in tract F-560 to prepare for native grass planting. Older shrub field breaks have been invaded by boxelder, mulberry and elm species. These are being cut and treated to allow the shrubs sunlight to continue to grow. Most of this work is in tracts F-550, F-557 and F-564.

Estimated State Expenditures for Development \$ 6,000.00

#### 9. Vegetative Controls

Twenty acres of undesirable vegetation will be controlled by cutting and/or spraying. Approximately 1,000 acres of grasslands and 1,500 acres of old field succession will be burned during March and April to set back woody plant invasion. Fire provides an inexpensive means of vegetation control. See Exhibit C for prescribed burn areas.

Estimated State Expenditures for Maintenance \$ 3,000.00

#### 10. Firebreaks

Firebreaks will be plowed around grasslands managed for nesting cover prior to prescribed burns. Firebreaks are seeded to sorghum for wildlife food plots after the burn.

Estimated State Expenditures for Development \$ 1,000.00

#### 11. Timber Management

Timber stand improvement projects will continue in Tracts G-605, G-623, G-639, and G-648. These areas are even-aged silver maple stands that were severely damaged by flooding and now have numerous trees that have fallen. The TSI work involves cutting and piling these trees for wildlife cover; partially fallen trees are a potential safety hazard for people using these tracts. Firewood cutting permits may be used in some areas as a means to accomplish some of this TSI work. We will also use fire on some areas where 80 to 90 percent of the trees have died to clean up these sites. This TSI work will open up the areas to allow better natural regeneration. This work is being coordinated with the local COE office. Upland timber areas to the west of the headquarters will be reviewed with the COE office to develop a forestry management plan to benefit wildlife.

Estimated State Expenditures for Development \$ 3,500.00

## 12. Nesting Structures

Existing wood duck boxes will be inspected for use and necessary repairs will be made. Ten new wood duck boxes will be made and placed on the area. Local groups such as Ducks Unlimited chapters, Waterfowl USA and Boy Scout groups have been or desire to work on nesting structures to be used on the area. Where possible, their volunteer assistance will be used. Our goal of 200 wood duck boxes on the Hawkeye Wildlife Area was reached in 1995, but a constant effort is needed to maintain this number.

Estimated Condition Five Expenditures for Development	\$	600.00
Estimated State Expenditures for Development	\$	600.00
Estimated State Expenditures for Maintenance	\$	1,300.00

## 13. Potholes

None

## 14. Water Level Management

Water level control structures will be manipulated to permit fall water raises and December drawdowns. Reservoir water levels will be monitored to compare responses of vegetation to the changing water levels.

Estimated State Expenditures for Maintenance	\$	2,200.00
--	----	----------

## 15. Project Administration

This includes supervisory time, planning, document preparation, weekly, monthly and annual reports, correspondence, investigations, and meetings affecting the Hawkeye Wildlife Area. Eighteen farm leases are being administered on 3,067 acres of agricultural land. All leases are advertised in local newspaper and are open to competitive bidding. Many of these fields are in winter wheat for goose management. Time will be spent monitoring the effects that pool raises will have on the area. This will involve looking at the effects on wildlife populations, habitat, cropland, and public use facilities. Condition Five expenditures include administrative charges for claim processing, advertising of crop ground, and the purchase of maps and aerial photos for area use.

Estimated Condition Five Expenditures for Operations	\$ 1,200.00
--	-------------

Estimated State Expenditures for Operations	\$ 49,000.00
---	--------------

## 16. Custodial Functions

Patrols will be conducted as needed to insure the protection of capitol improvements. DNR conservation officers will enforce fish and game laws and rules pertaining to wildlife management areas. Inspections will be made to determine work needs and future plans. Litter and trash will also be picked up on the area.

Estimated State Expenditures for Maintenance	\$ 9,500.00
--	-------------

## 17. Cooperation with Research

Surveys will be conducted on waterfowl, eagles, deer, upland game, furbearers, bird rookeries, and wild turkeys. Banding of wood ducks will continue as part of the national effort to monitor that species. A continuation of the national dove banding effort may occur during 2006. Hunter bag checks will be conducted. A telemetry study of ornate box turtles is in its sixth season to monitor movements and habitat usage; they will be looking at nighttime activity this year. Additional studies as required or needed will be completed.

Estimated State Expenditures for Development	\$ 5,500.00
--	-------------

## 18. Miscellaneous Activities

### A. Removal of Fences, Buildings, and Foundations

Removal of old, interior fences by dozer or by hand will continue as time permits. By removing these items, potential safety hazards are eliminated.

Estimated State Expenditures for Development \$ 1,500.00

### B. Equipment Maintenance

Repairs will be made on equipment to assure safe and efficient operation. Any necessary repairs on the JD 750, trailer, Ford 7710, blade, or mower will be paid with Condition Five monies. The crawler and tractor should require 1,400 gallons of fuel during the year.

Estimated Condition Five Expenditures for Maintenance \$ 7,500.00

Estimated State Expenditures for Maintenance \$ 8,500.00

### C. Equipment Purchases

1. Some small tools are needed for a variety of jobs done at the maintenance headquarters.
2. Replace two chainsaws used for tree removal and brush clearing. Purchase skid loader and brush ax attachment for control of invasive brush species and maintaining trails and service roads. The skid loader will be used for loading dirt and rock into the dump truck.

Estimated Condition Five Expenditures for Equipment \$ 62,000.00

## 19. Salaries

One permanent employee is paid with Condition Five funds. Salary and benefits are all included for these employees under Condition Five. All other employees on the Hawkeye Wildlife Area are paid through State funds.

Estimated Condition Five Expenditures \$ 48,000.00

### III. SUMMARY OF PROPOSED EXPENDITURES

Work Activities		State Expenditures	Condition Five Expenditures
1.	Buildings	\$ 4,500.00	\$ 7,000.00
2.	Dams, Dikes and Levees	759,000.00	115,000.00
3.	Roads and Trails	21,000.00	19,000.00
4.	Public Use Facilities	53,200.00	7,000.00
5.	Signs, Boundary Markers, and Encroachments	3,800.00	---
6.	Tree and Shrubs	2,600.00	500.00
7.	Herbaceous Seedings	3,500.00	3,500.00
8.	Clearings	6,000.00	---
9.	Vegetative Controls	3,000.00	---
10.	Firebreaks	1,000.00	---
11.	Timber Management	3,500.00	---
12.	Nest Structures	1,900.00	600.00
13.	Potholes	---	---
14.	Water Level Management	2,200.00	---
15.	Project Administration	49,000.00	1,200.00
16.	Custodial Functions	9,500.00	---
17.	Cooperation with Research	5,500.00	---
18.	Miscellaneous Activities		
	A. Removal of Fences, Buildings, etc.	1,500.00	---
	B. Equipment Maintenance	8,500.00	7,500.00
	C. Equipment Purchases	---	62,000.00
19.	Salaries	---	48,000.00
TOTAL PROPOSED EXPENDITURES		\$ 939,200.00	271,300.00



#### IV. SUMMARY

##### 1. Proposed Crop Acres:

Corn	1,340.5
Beans	758.0
Grain sorghum	89.4
Wheat	415.7
Hay	321.3
Idle	<u>142.6</u>
Total acres	3,067.5

##### 2. Estimated Revenues:

Crops	\$ 188,818.00
Timber	---
Other	---

---

TOTAL	\$ 188,818.00
-------	---------------

##### 3. Exhibits:

- A. Map of refuge boundaries
- B. Map of boundary survey
- C. Map of prescribed burns
- D. Map of proposed subimpoundments

