

FOREST LEGACY PROGRAM ASSESSMENT OF NEED STATE OF IOWA



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Iowa Forest Legacy Assessment of Need

Purpose

Iowa desires to enroll in the USDA Forest Service's Forest Legacy program that will assist the state in protecting threatened private forestland from being converted to non-forest uses. Iowa is submitting this Forest Legacy Assessment of Need (AON) to the U.S. Department of Agriculture Secretary to demonstrate a need for forest protection from land use change to non-forest in our state. This document will develop Eligibility Criteria to distinguish important forest areas to be approved as Forest Legacy Areas, which will be eligible for Federal Forest Legacy funds to acquire lands and interests in lands from willing sellers of threatened forest land. The objectives of this Assessment of Need (AON) are to:

- Review the USDA Forest Legacy Program and opportunities it offers Iowa.
- Give an overview of the forest resources of Iowa,
- Assess the current land use issues and trends in Iowa to determine what constitutes a threat to forest use.
- Assess the forest resources of Iowa to determine what should constitute an environmentally important and threatened forest,
- Refine the national Forest Legacy Program eligibility criteria to meet Iowa's needs and to develop long term goals for a successful program in the state,
- Apply Forest Legacy eligibility criteria to see what forested regions/areas in the state meet the eligibility criteria, and
- Solicit public input to determine which forested areas should be selected and submitted to the USDA Secretary.

USDA Forest Legacy Program

As part of the 1990 Farm Bill, Congress created the Forest Legacy Program to identify and protect environmentally important private forestlands threatened with conversion to non-forest uses - such as subdivision or residential or commercial development. To help maintain the integrity and traditional uses of private forestlands, the Forest Legacy Program promotes the use of conservation easements and acquisition from willing sellers. The Federal Government must be the sole holder of all Forest Legacy easements that are acquired under the federal acquisition option. The Federal Government may delegate the administration and monitoring of the easements or acquisitions to the State Forestry agency under the state acquisition option. States may request this state option through a grant to administer the Forest Legacy Program and acquire lands or interests in lands to be held by the State or local unit of government. The State of Iowa desires to utilize this "state" option and request a grant to administer the Forest Legacy Program in Iowa. The state government is expected to share the costs of the program with the USDA Forest Service. States develop an Assessment of Need (AON) that meets Forest Legacy Program criteria set forth in the federal guidelines and is approved by the USDA Secretary. Once the AON is approved, the State is eligible for federal funding with to purchase conservation easements or fee acquisition from willing sellers of private forests located in designated Forest Legacy areas. The federal share of the Forest Legacy Program costs may not exceed 75%. The state forestry agency should partner and cooperate with non-profit organizations in administration and monitoring efforts.

Landowners who participate in the Forest Legacy Program will be required to manage their forests according to a State Forester approved Forest Stewardship plans and other terms of their easements. Forest management activities, including timber harvesting, recreational activities such as hunting, fishing and hiking are permitted as long as they are in accordance with the approved forest stewardship plan. The landowner may retain the right to limit general public access to the forests enrolled.

Overview of Iowa's Forest Resources:

Iowa's Forest History

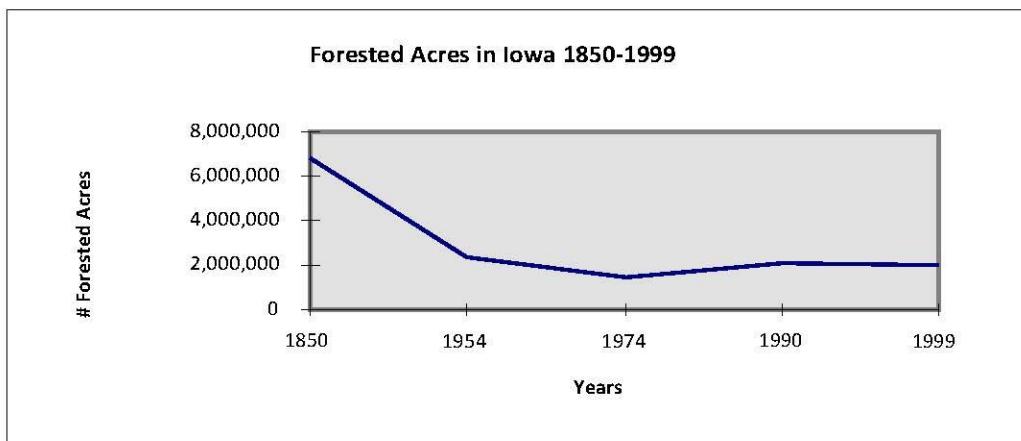
Before settlement in the 1830s, tall grass prairie and forestland covered Iowa's land. The rich soils, rolling landscape and abundant prairies provided innumerable opportunities for settlers to build homes and farms that would produce successful agricultural crops. Before long, Iowa's main source of income included the planting and harvesting of agricultural crops, and livestock grazing resulting in thousands of acres of prairie and forests being lost. The earliest estimate of Iowa's forested area by county was made the original land survey conducted between 1832-1859. At that time, nearly 19 percent of the state contained trees. By the beginning of the 20th century nearly ½ of the state's

forestland and 90 percent of the prairie land was cleared for agricultural use.

Iowa's Forest Cover at Settlement 1832-1859

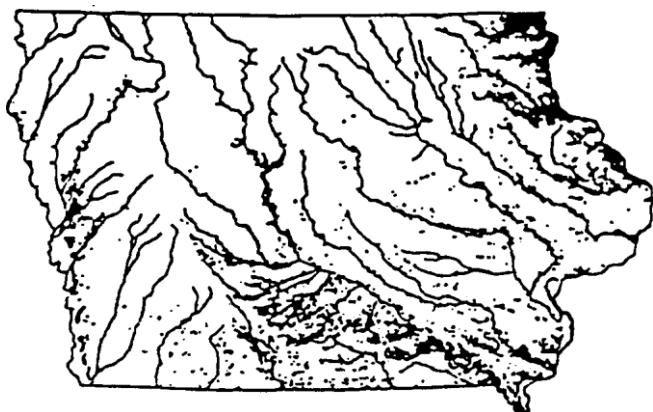


By 1954, the year of the first USDA Forest Service inventory of Iowa, forestland had declined to 2.4 million acres. In this span of about 100 years, an average of 46,000 acres of forestland was lost each year, as Iowa became one of the nation's top producing agricultural states. Between 1954 and 1974, forestland in Iowa declined by 34 percent to only 1.5 million acres. This occurred as Iowa farmers answered the call of then U.S. Secretary of Agriculture, Earl Butz who encouraged the farming practice of "fencerow to fencerow" farming to make the Midwestern states the "Breadbasket of the World."



According to the USDA Forest Service's 1990 Forest Inventory, Iowa's forests rebounded to 2.1 million acres. The Iowa DNR's Geographic Information System (GIS) Program Analysis of 1992 Landstat Land Cover for Iowa recorded 2.5 million acres of tree cover in Iowa. An increase in both of these numbers of more than 32 percent from the 1974 figures is due in part to reduced calf-cow grazing throughout the state and the use of expanded state and federal cost-share reforestation programs by private landowners. Every county in the state has some forestland; however, the amount varies from 32 percent forest cover in Allamakee County (NE IA) to less than one percent in Grundy and Pocahontas counties (NC IA).

Iowa Forest Cover Today



Recently, the first year of USDA Forest Services Forest Inventory and Analysis annualized forest inventory program was conducted in 1999 using 111 forested fixed plot sampling (1/5 of the total fixed plots to be measured by 2004). Preliminary estimates showed a slight decline of 5% (approximately 100,000 acres lost) in the number of forested acres in Iowa since 1990. The reasons for this possible decline could be due to the limited number of samples taken to date, and or the increase in land use change around the metro areas of the state. Due to the limited number of field plots measured, future estimates using this 1999 FIA data are subject to change when ensuing annual inventories are completed and data compiled in 2004. The reduction in the number of acres of Iowa's forests according to this 1999 FIA preliminary data may indicate that Iowa's forests could again be at risk to conversation to non-forest uses. Table 1 below shows how Iowa compares to neighboring states in terms of the number of acres of forestland.

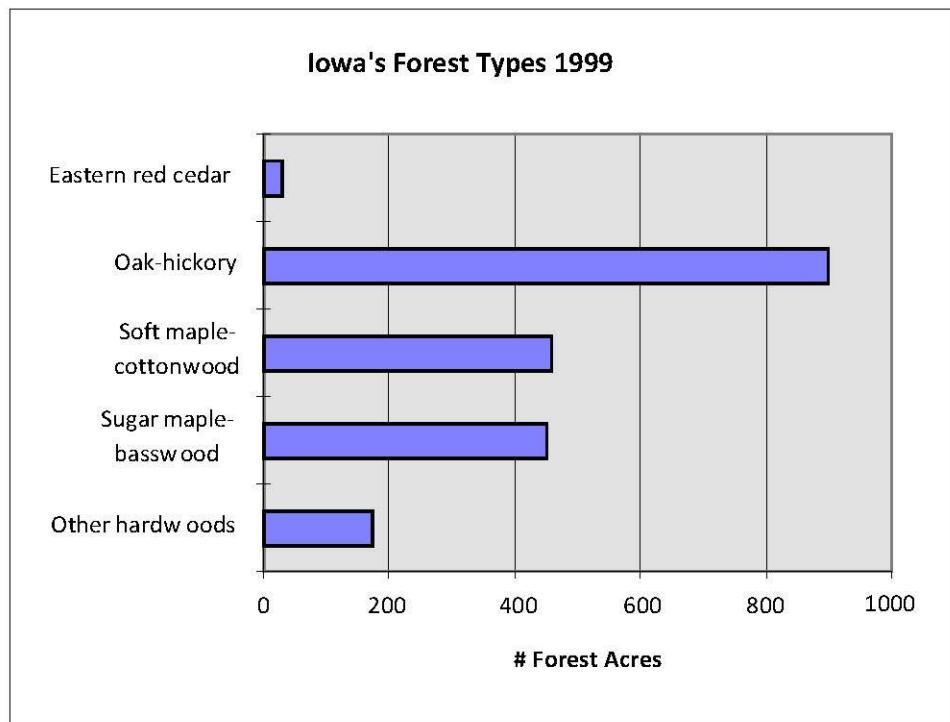
Table 1. Number of Acres of forestland and % of land cover in neighboring Midwestern states (latest year of data collection)

State	Forested Acres	% of total land cover	Year of data collection
Iowa	2,000,000	6%	1999*
Illinois	4,290,000	12%	1994
Indiana	4,400,000	19%	1996
Minnesota	16,700,000	33%	1999*
Missouri	13,300,000	30%	1999*
Nebraska	880,000	2%	1998
Wisconsin	15,900,000	46%	1998

*Preliminary numbers based upon first year data of USFS FIA annualized inventory data

Iowa's Forest Locations & Types

Iowa's forests are as diverse as the land they cover. From north to south and east to west our forest's diversity reflects changes in climate, soils and land use. Hardwood trees dominate in Iowa, representing more than 95% of the total growing stock. Oaks and hickories dominate dry upland sites and occupy 48% of the forestland in Iowa. Sugar maple-basswood occupies another 500,000 acres of upland sites, and this shade tolerant forest type is increasing due to individual tree selection timber harvesting techniques. Silver maple-cottonwood- American elm-green ash dominates the bottomland/floodplain forest sites, occupying around 500,000 acres. Iowa black walnut trees have been prized for their rich color and quality for many years for veneer that is exported worldwide. In the Northeastern part of our state, balsam fir, white pine, paper birch and aspen exist in isolated locations, indicating a time when Iowa's forests were closer to the forests common to our Great Lake states to the north.



Sawtimber-sized trees dominate Sixty-five percent of the forestland in Iowa (more than 11 inches Diameter at Breast Height (DbH) more than half of these trees are over 60 years old. The recent 1999 FIA annual forest inventory data shows an increase in forest stand-size class for trees greater than 5 inches in diameter, with pole sized stands increasing by 23% over the 1990 data. In addition, the data shows that growing stock volume has also increased by over 6% since 1990 as forested stands become denser and grow larger in size.

Iowa's Forest Health

The health of a forest, how well it grows and how it looks often impacts the long- term management decisions of Iowa's private forest landowners. Overall, the health of Iowa forests is in relatively good condition, with minimal annual losses to oak wilt, Dutch elm disease and other pathogens. But Iowa's forests are stressed from severe weather, livestock grazing, invasive species and poor logging practices. Severe weather has been the biggest impact on the health of Iowa's existing forests from ice storms, early wet heavy snow storms, strong winds/tornadoes and flooding over the last decade that break, blow down, uproot or kill trees. Flooding is a common occurrence along Iowa's major rivers, and since the late 1950s, large-scale dam and flood control structures have been built to protect valuable farmland and communities. These dams and reservoirs have affected natural flood and site distribution and impact the natural process of soil sedimentation and new tree establishment on floodplain areas. Severe winds have caused significant forest blow downs impacting over 30,000 acres of forests during the 1990s.

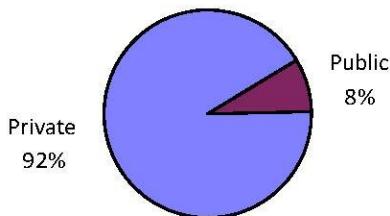
Even with the reduction of traditional cow-calf operations to more intensive feedlot operations on today's Iowa farms, Iowa's forests are still grazed by livestock as landowners attempt to get annual returns from their lands. Livestock grazing in Iowa impacts soil compaction, establishment of natural native plant regeneration and introduction of invasive plant species. Invasive plants such as honeysuckle, buckthorn, Reed Canary grass, garlic mustard and others are expanding their range and competing with native forest plants after site disturbance from livestock grazing and poorly planned logging operations, complicating natural plant regeneration and reforestation efforts.

The majority of logging on private forestlands in Iowa occurs without professional forestry assistance, as few Iowa forest landowners are aware of the benefits of public/private professional forestry services available or they only have short-term economic interests. Most Iowa loggers utilize an individual tree selection method or "diameter limit" logging that harvests all the trees of desirable tree species of a certain size and larger. But Iowa's forests are 100-150 years old on average or even aged (all the trees in a forest are approximately the same age - no matter if they are big or small in diameter), often removing the best growing trees and leaving the lower quality trees as seed sources.

Characteristics and patterns of Iowa's forestland owners

Iowa's forests are 92 percent privately owned. Farmers own 64 percent; non-farmer private individuals own 22 percent and industry 6 percent of our forests. Surveys of Iowa's land by the USDA Forest Service show 55,400 private landowners own an average of 40 acres of forest. Forty-six percent of Iowa's forest landowners live on their forestland, 30% live within 1-5 miles of their forests and 24% are "absentee" forest landowners. Thirty percent of those forest land owners have held their land for more than 20 years, while 24 percent of the landowners have held their land for 5 or fewer years. Outdoor recreation is the number one reason why Iowa's private forest landowners own forests.

Forest Landownership in Iowa, 1999



Publicly owned forest land in Iowa totals about eight percent (156,000), and is primarily owned by state and local governments in the form of state forest, state/county parks, forest reserves and wildlife areas. Of the 156,000 acres of public land, the federal government for floodplain protection, wildlife refuges and one national monument (Effigy Mounds) owns 44,000 acres.

Recent Iowa's private forest land ownership demographics indicate a major shift in ownership from farmers who are declining in number and increasing in age to middle-aged absentee non-farmers who may possess different ownership objectives for their land. Of the more than 90 percent of privately-owned land in Iowa, two-thirds belong to individuals fifty-five and older, while nearly 20 percent belongs to owners over age seventy-four. Thus, over the next few years, one forest property in five will probably change hands as older owners sell their land or pass away.

The demand for private open space in Iowa has increased the value of forestland. The higher cost to purchase forestland makes parcelling the land into smaller units financially attractive; resulting in forests being cut into smaller units. This continue expansion of forest parcelling and increased land values "threatens" the sustainability of Iowa's forests, impacting local forest ecosystems that stretch beyond property boundaries and reduces management options for future landowners. Increased threats of parcellization, conversion rates to other land uses and open space land values will be some of the measurement tools to help Iowa recognize "threatened forests" for implementing the Forest Legacy Program.

Benefits and Opportunities of Iowa's Forests

Environmental Benefits

Forest Plant Diversity

The diversity of Iowa's plant life is a result of the state's physical location. Surrounded by varying landscapes from six different states, Iowa is the meeting ground for plants from the Great Plains, the extreme northern U.S., the eastern deciduous forest and the southeast woodlands and coastal plain. Habitats reminiscent of those normally found in Minnesota or northern Wisconsin can be found in the topography of northeast Iowa. Being on the fringe of the eastern deciduous forests and the tall grass prairie, Iowa forests are a significant area for rare plants such as shinleaf, bearberry, bunchberry, low sweet blueberry, dwarf scouring rush and twinflower can be found here. The dry, west-facing loess hills along the Missouri River in western Iowa provide habitat similar to that of the Great Plains. Many species characteristic of the western United States are found in this region, including rare plants like tumble grass, buffalo berry and slender beardtongue. The woodlands of southern Iowa are home to trees like pawpaw, mockernut hickory, pecan and blue ash. The moist woodlands of Iowa, where traces of the eastern deciduous woodlands can be found, host such rare plants as showy ladyslipper, Hooker's orchid, jeweled shooting star and twinleaf.

Most of the state has been plowed, drained or grazed by livestock, resulting in the disappearance of prime habitat and of many native plants. Over 80 native plants have not been seen for over 50 years and at least 90 others are now on the Iowa's threatened and endangered species list. Many of these unique plants require special habitats; in some cases, careful and attentive management on private and public forestland is needed to maintain their habitat. Maintaining and restoring the forestland is important to increasing plant diversity in the state. The Forest Legacy Program can be of great assistance to Iowa by allowing working forests to expand into former agricultural areas that were once forests to start with. Landowners of Forest Legacy Tracts will be encouraged through forest stewardship efforts to seek reforestation and timber stand improvement practices to enhance the value of the forest.

Forest Animals and Wildlife Habitat

There are more than 300 species of wildlife that have a link to Iowa's forests. Iowa's landscape provides a unique challenge to the survival of natural ecosystems and wildlife communities. The interspersion of cropland with woodlands, pastures and other idle lands constitute the state's wildlife production capabilities. To have survived in Iowa, wildlife species must embody a true "survival of the fittest" mechanism, by adapting to pervasive agricultural land use and development.

Many non-game wildlife species have not fared well as land use change has intensified from open space to residential/commercial development in Iowa. Eighteen species of amphibians and reptiles are listed as threatened or endangered across the state. Of the sixty-eight species once commonly found in Iowa, ten no longer occur in the state, four are endangered and five are threatened. Bird species once known to have nested in Iowa include twelve, which are eradicated, and fourteen species now on the state threatened or endangered lists. Iowa's forests are key habitats for several federally and state listed threatened and endangered wildlife, such as the Indiana Bat. Iowa's forests also provide a "buffer" for minimizing sedimentation from agricultural areas within their watersheds.

A few species provide an exception to the diminishing number of desirable wildlife species and their diversity in Iowa. There are currently more white-tailed deer in Iowa than at any time in the 20th century. Wild turkeys, which were eradicated by 1900, have been reintroduced into natural settings with great success. Unfortunately, many of the fish and wildlife species, which have continued to flourish in Iowa, indicate an unhealthy and unbalanced ecosystem. Examples of these species include starlings, house sparrows and carp. These exotic species can be compared to weeds in a garden or field, which take over the land where a once healthy, diverse ecosystem existed and fill in the ecological niche for an eradicated native species that was in balance with that ecosystem.

Maintaining and enhancing the amount of contiguous forest cover is critical for providing habitat for Iowa's native species of wildlife. Wildlife experts have expressed the need to increase the amount of oak/hickory regeneration in Iowa's forests to benefit many game species. In addition, the non-game wildlife experts have stressed the need for less forest fragmentation - to enhance opportunities for contiguous forest cover to protect nesting of native bird species. It will be the aim of the Forest Legacy Program in Iowa, to look for opportunities to protect and enhance specific forest types that have high wildlife values such as oak/hickory forests. Contiguous pieces of forestlands of over 50 acres in size are unique in Iowa. The Forest Legacy Program in Iowa will give high consideration for applications that maintain contiguous forest along rivers and streams.

Watershed protection and enhancement

Water is a critical resource for Iowa, for drinking water supply, industry and agricultural production. Iowa's landscape was once prairie, forests and wetlands that filtered out and slowed down runoff from precipitation and snow melt. As wetlands were drained, tile lines established, prairies and forests plowed to establish a strong agricultural system, soil erosion and excessive nutrient pollution became significant problems in Iowa. Excessive sediment, nitrogen and phosphorus are serious water quality issues in 157 identified impaired waterways across the state. Animal feeding operations and waste management also contribute to excessive nutrient problems and occasionally cause massive fish kills in the state. Water quality is a major political issue in Iowa, and much federal and state investment through Conservation Reserve Program (CRP), Environmental Quality Incentives Program (EQIP). Iowa hopes to soon implement a Conservation Reserve Enhancement Program (CREP) to increase establishment of forested riparian buffers along critical streams and rivers and to reestablish wetlands and prairies on private lands across the state.

Approximately $\frac{1}{2}$ of Iowa's forests are on slopes greater than 10%. While the other $\frac{1}{2}$ of Iowa's forests are located in floodplain areas. These existing forests located on steep and wet soils offer tremendous opportunities to protect and enhance water quality in Iowa. The ability of the forestland to protect and enhance water quality in Iowa will be an eligibility criterion for the Forest Legacy Program.

Economic opportunities

Economic Activity & Value

Iowa's forests although limited in overall land cover, provide a wide array of significant commercial and non-commercial resources. Iowa's forests provide income and employment from timber harvest and wood products manufacturing, they also protect critical watersheds for rural and urban communities and provide a scenic environment for hunting, fall color viewing and other forms of outdoor recreation. Recent USDA Forest Service Forest Inventory data indicates that the total number of forested acres in Iowa is decreasing. In addition, the values of lands surrounding public forest areas are threatened by land use change and development. The Forest Legacy Program plans to encourage applications from landowners who own forest land bordering public or permanently protected forests to meet the increased demand for the above activities and economic needs.

Firewood, lumber and other timber products are produced from Iowa's forests. Forest landowners receive income from the sale of timber. Reports to the DNR in 1999 indicated an annual payment of \$14 million to Iowa landowners for timber. Sawmills, veneer mills, pulp mills, pallet plants and millwork operations provide 5.7 percent of all manufacturing employment in Iowa with annual payments of \$210 million, much this in rural communities. Approximately 300 Christmas tree growers make their homes in Iowa, managing more than 2,500 acres of Christmas tree farms on former crop ground that was marginal in production and highly erosive in nature. Iowa's Christmas tree farms stabilize these highly erosive areas and over with 50,000 Christmas trees harvested each year adds over \$1 million to Iowa's economy. New uses for Iowa's forests continue to be explored, from mushroom growing, collecting seed and pollen to leased hunting it is estimated that the value added for economic activity to the State of Iowa from existing wood businesses is over \$1 billion in 1999 (Iowa DNR, 2001).

Recreational opportunities

Iowa's forests provide economic gain to our state in the form of outdoor recreation. In 1994, according to the 1995 State Comprehensive Outdoor Recreation Plan (SCORP), a total of 11,401,629 visitors utilized the 83 state park and recreation areas across Iowa. Visiting state and county parks, stream corridors, state wildlife and forest areas, city parks and greenbelts, trails, and lakes are just a few of the recreational opportunities available to Iowans. The main use for the state park areas was for outdoor recreation activities including camping, hiking and enjoying nature. Northeastern and southeastern Iowa cities have long-used their native spring flowers and fall foliage to attract visitors, such as the 10,000 to 12,000 annual visitors to the Annual Forest Crafts Festival at Lacey-Keosauqua State Park. In northeast Iowa, income generated from tourists traveling to local communities to view fall foliage is estimated at \$5.9 million (RCDNEIA, 1995).

Hunting, fishing and trapping activities also involve Iowa's forests and economy. In 1993, 392,940 Iowans and 44,298 non-residents purchased hunting licenses. The added costs of supplies and lodging utilized by hunters are estimated to bring a total of \$451 million to Iowa's economy.

The Mississippi River valley in the eastern portion of the state has long been a site for numerous recreation opportunities in Iowa. Sport fishing is the most popular recreation activity on the river, while hunting, boating, camping, picnicking, swimming and beach use are also common activities.

The supply of these recreation areas is monitored by the state to help guide acquisition and development decisions. Determining Iowa's recreation needs is basic in reducing overcrowding at existing public facilities, protecting the recreation resource and disbursing limited funds and manpower where needed. Since many of Iowa's forests run along the river valleys, protecting those forests for future recreational use and public enjoyment is a high priority for the Forest Legacy Program in Iowa. Ways to determine the value of forest land to outdoor recreation can be its location with proximity to lakes and rivers, biking and hiking trails, and areas that enhance public access. In negotiations with private forest landowners that enroll in the Forest Legacy Program, opportunities to allow public use of the lands will be

evaluation criteria for Legacy applications review and funding.

Native Iowan and noted environmentalist Aldo Leopold, writing in *A Sand County Almanac*, spoke of Iowa's recreational needs: "**Recreational development is a job not of building roads into lovely country, but of building receptivity into the...human mind.**"

Scenic and Viewshed Values

The scenic and aesthetic beauty of Iowa's landscape (viewshed) has been documented in books, films, poems and personal diaries for years. Iowa is home to sweeping countryside, radiant autumn color, velvety-covered riversides, peaceful wildlife sanctuaries and expansive vistas. Examples of Iowa's scenic vistas are the Great River Road, located along the Mississippi River in eastern Iowa, and the Loess Hills Scenic Byway, located along the Missouri River valley in western Iowa. These roads provide numerous overlooks and panoramic views for tourists.

Iowa's once vast virgin prairies, long suffering from threats of extinction due to cultivation of the lands they once occupied, can still be found as remnants in small patches of agricultural land around the state. It is estimated that less than 30,000 acres of native prairie is left in Iowa from the original 30,000,000 acres at the time of settlement. These prairie remnant provide a large share of scenic beauty to the Iowa landscape, are the site for many threatened and endangered animals and plants and provide Iowans with a link to their natural heritage.

Most Iowans hold dear their prized scenic views, vistas, woods and waterways. The aesthetic value of these forested areas cannot be underestimated. Iowa is in the bottom tier of states with the amount of public land available for outdoor recreation. With a limited number of bike paths, hiking trails, wildlife habitat, hunting grounds and bird watching opportunities, many Iowans make great use of their public and private forests. Applications for inclusion into the Forest Legacy Program in Iowa will weigh the property's scenic values, such as presence of vistas, location near scenic byways or wild and scenic rivers.

Iowa's Forests: Related Resources

Land Use



Agriculture

Iowa is undoubtedly one of the strongest agricultural states in the United States. Nearly 90% of Iowa cropland is planted to corn and soybeans. Iowa is the number one in the nation for corn production and in the top five in soybean production. Iowa's cropland often tends to be a pure "monoculture", made up of a single crop species, such as corn or soybeans. Expensive chemicals and intensive cultivation produce herbicide drift and increase gully erosion into adjoining forestland. Even with efforts to expand "no till" farming and enrollment of highly erodible cropland in the Conservation Reserve Program (CRP) soil erosion on Iowa cropland averages over 6.7 tons per acre. DNR has documented increased evidence of "tatters" of tree leaves during the 1990s that appears tied to expanded herbicide use in intensive agriculture.

Livestock operations involving cattle and hogs are on large-scale feedlot and confinement feeding facilities throughout the state. Iowa leads the nation in hog production and is close to the top in cattle and dairy production.

Maintenance and expansion of forests around Iowa's cropland and animal feed confinement areas can significantly reduce soil erosion and trap excessive nutrients before entering waterways. Iowa leads the nation in installation of forested riparian "buffers" placed between agricultural operations and waterways. But soil losses continue in Iowa equaling 167 million tons per year, indicating that work is still needed in maintaining existing forests and expanding riparian forested buffers (NRCS, 1995). The threat of forestland conversion into farmland will be an eligibility criterion for the Forest Legacy Program in Iowa.

Mineral Extraction

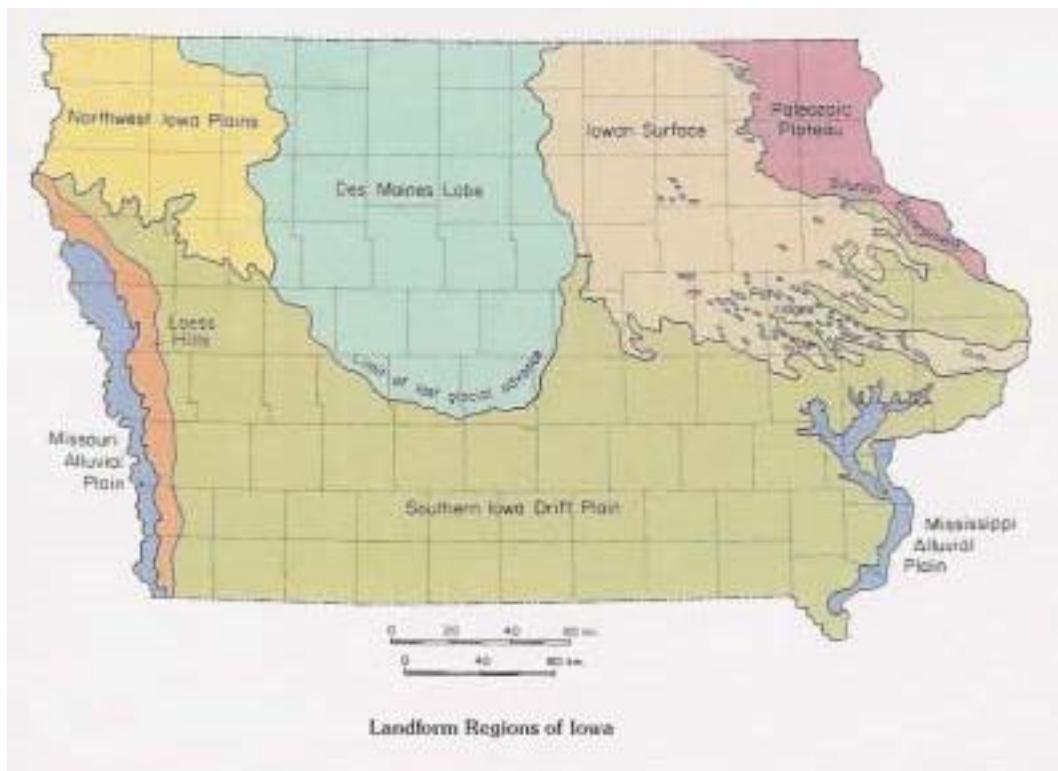
Coal mining was once the main source of income for in Iowa for many years. Using extensive amounts of Iowa's forests for lumber, mine and railroad ties. Around the turn of the 20th century coal mining was at its height in Iowa, but began to see a serious decline, and eventual abandonment, by the end of World War II as our nation turned to more abundant soft coal reserves in the Western U.S. Currently, mining operations around the state are generally large-scale extraction of abundant limestone and sandstone reserves for use as gravel and sand, respectively. Many of these gravel pit operations in Iowa are expanding into adjacent forested areas. The threat of forestland conversion into gravel pit operations will be an eligibility criterion for the Forest Legacy Program in Iowa. Acquisitions and easements on forests in the Forest Legacy Program will seek to acquire all surface and underground mineral rights.

Urban Development

The current trend in urban development in Iowa is toward conversion of larger forested tracts to smaller forested parcels or to non-forest uses. The fragmentation of remaining forested lands can be attributed to large-scale urban development and land use change that continues in the metro areas of most major cities in Iowa, as well as the spread of hobby farms. Many traditional farm owners, in order to cash in on the skyrocketing value of commercial and residential properties, are selling their land for houselots. Many farming landowners, unable to sustain long-term profits on smaller parcels of farmland, are selling their properties for high prices to real estate developers and speculators in order to make short-term profits. Urban centers, such as those around Des Moines-Ames, Cedar Rapids-Iowa City, Quad Cities, Council Bluffs and Sioux City have seen increasing pressure to build around urban centers. Polk County for example, where Iowa's state capitol, Des Moines is located, has annually lost over 3,000 acres of open space (agricultural and forest) to development since the early 1990s. Where financially possible, the threat of conversion from forestland into non-forest use around metropolitan areas of Iowa will be considered as an eligibility criterion for the Forest Legacy Program.

Geology and outstanding features

Iowa's ancient origins lie in the periodic encroachment of sediment deposited by tropical seas and glacial ice sheets. Sedimentary rocks form the basic geologic foundation of our state and may be seen in various outcrops across the terrain. For the most part, Iowa's "geologic skeleton" is covered by younger sediment that arrived relatively recently according to geologic standards. The two main sediments that make up Iowa's landscape are loess, wind-deposited silt, and glacial till, a clay soil deposited by glaciers.



Iowa's topography is generally considered rolling in nature, ranging from flat-level terrain in the north-central region to dry thin soiled ridges of southern Iowa, and to steep bluffs along the Mississippi River. The terrain of "driftless area" of northeastern Iowa resembles our Lake State neighbors of Minnesota and Wisconsin, while much of southern Iowa could be mistaken for the terrain of Missouri. Western Iowa's Loess Hills are a truly unique landmark, created by wind deposits and glacial movement thousands of years ago. The Loess Hills area is one of only two of its kind of geologic formations in the world; the other located along the Yellow River in China. Forests having unique geological features will be considered important as an eligibility criterion for the Forest Legacy Program.

Soils

Iowa's soil is a unique resource, comprising the greatest concentration of prime farmland in the world. A recent USDA inventory reported that one-fifth of the best cropland in the United States is located in Iowa. In fact, Iowa's fertile, black topsoil, reaching an average depth of 14 inches or more, has often been called "the black gold of Iowa."

Soils found under forest vegetation make up the second largest portion of our state's soil resources. Many early settlers chose Iowa's forests over the more abundant prairies to first clear for cropland. The soil in these wooded areas was much easier to break up and cultivate, whereas prairie sod had such a strong granular structure, that it might take as many as "seven yoke of oxen to pull a single plowshare". The topsoil developed under Iowa's forests is thinner and often lighter in color than that has developed under prairie. A gray subsurface layer is also associated with soils developed in Iowa's forests; for this reason, early settlers often called it "white oak soil."

Unfortunately, Iowa has the distinction of having the greatest amount of soil erosion of any state in the Corn Belt. The average soil loss on tilled cropland is estimated at around 6.7 tons per acre per year. The combination of lost topsoil through erosion with the loss of organic matter and vegetation from soil aeration and cultivation has resulted in a significant depletion of the thickness of Iowa's topsoil. Forests threatened to be converted to non-forest uses that are adjacent to highly productive cropland and waterways will be eligibility criteria for the Forest Legacy Program.

Cultural resources

Iowa's land is rich in historic and prehistoric cultural heritage. Native Americans were the first known inhabitants of Iowa, living off of the land for hundreds of years before European settlement in the mid to late 1800s. Early Indian tribes settled along Iowa's many waterways, leaving remnants of the daily activities of hunting, fishing and farming that made

up their lives.

Iowa's cultural resources can also be found in a variety of locations across the state. Some of the most significant sites are those related to early American settlers and religious sects which passed through or made their homes in Iowa. The Amana Colonies are among the most visited and historically important sites in all of Iowa. Located in eastern Iowa, the colonies were the home to a religious sect of Germans who established communal living settlements over 100 years ago. Today, the Amana Colonies are the largest private forestland owner in Iowa, owning and managing over 8,000 acres of upland and bottomland forest.

Iowa is home to a number of areas of geological and archeological, as well as historical, significance. Many of Iowa's archeological resources, revealing our cultural past and environmental history, are in jeopardy. More than 80 percent of the state's 19,000 known archeological sites have been damaged or destroyed by erosion, sand and gravel operations, farming, construction, vandalism or careless artifact collection. Only five percent of the state has been surveyed for the fragile remnants of its history, which leaves many untouched, natural areas to explore. Unfortunately, threats of conversion of forestland along streams and rivers may result in the destruction of many unidentified cultural resources. Streamside forestland and sites identified to be culturally important that are threatened to be converted to non-forest uses will be an eligibility criteria for the Forest Legacy Program.

Impacts to the Future of Iowa's Forests

Iowa's forests play a vital role in the balance of the state's native ecosystem and wildlife habitats. Threats to conversion of these precious forestlands to non- forest uses on private lands are often, beyond the control of government agencies using technical forestry assistance and cost-share incentive programs to enhance and protect them. The demand for professional forestry services through the Iowa DNR's 16 field foresters has created a 1-4 month backlogged of requests. Federal and state cost-share programs have long waiting lists, often 2 to 3 times the available fund to plant trees, establish forested riparian buffers and to conduct timber stand improvement work. This assessment addresses the most present threats to Iowa's forests to date, namely, forest fragmentation, non- native invasive plant species, and land use change. These critical issues and threats affecting Iowa's forests, and associated natural resources, are described below.

Forest Fragmentation

Over the last 150 years, Iowa's landscape has seen a net loss of 70% of the original forest cover, leaving the state current with 5-6 percent of forestland cover. Most of these remaining forests have been divided into smaller tracts of privately owned land - many no more than 40 acres in size. The number of landowners has significantly increased in the past two decades, while the amount of forest land in the state has shown relatively little growth. This pattern of ownership growth and forestland shrinking has left privately owned parcels of forestland smaller and more fragmented. The creation of these smaller, isolated tracts of land has destroyed the animal and plant habitat of larger, contiguous forests, and reduced the biological diversity and richness of those species and their habitat.

Owners of these small parcels of forestland have found it increasingly difficult and uneconomical to manage their forests for timber, long-term profit and other traditional forest uses. However, these tracts retain their appeal to speculators and developers, who offer high prices for the forestland of landowners willing to sacrifice it for short-term profit. Many private forestland owners have succumbed to the pressure of short-term return on their investments.

The trend in Iowa is towards larger and fewer farms. This progress may cause reduced landowner interest in retention and management of fragmented wooded areas. Urban expansion in Iowa is increasing, especially around the metro areas of Des Moines, Quad Cities, Cedar Rapids, Iowa City and Council Bluffs. Many smaller privately owned forest tracts can be found bordering larger, state-owned forest lands and parks, however, they too need extra protection from conversion to non-forest uses. The risks associated with this private land's development to commercial or non-traditional forest uses include loss of plant and wildlife habitat, unbalanced ecosystems, loss of scenic and aesthetic values and pollution of critical watersheds, rivers and wetlands.

Fragmentation and urbanization of Iowa's forest landbase is by far the most critical threat facing our forests. The combining of smaller parcels of forestland with other small parcels, or with larger, state-owned forests, is the answer to extending habitat potential and making forest ownership and management economical once again. The future of Iowa's

biological diversity, aesthetic values, water and air quality and forest product industry lies in the minimization of future parcelization of forest land and the linking of the forested landbase the currently exists. Where the opportunity to do this exists in Iowa will be the location of Forest Legacy areas.

Non-native Invasive Plant Species

Exotic, non-native invasive plant species were first introduced into Iowa's native ecosystem during the years of settlement by Europeans. Most of the agricultural crops that thrive in Iowa soil are not native to the land, but have become very much a part of what we, today, consider to be a part of our state's landscape. These plants, as well as the flowers grown in gardens around the state, are for the most part non-threatening native plants species adapted to Iowa's landscape and climate.

However, there are other classes of exotic plants that are considered by many to be "biological pollution" of the natural landscape. Many of these invasive plants are capable of reducing native vegetation in and around forested and non-forested areas, as well as reducing the productivity and bio-diversity of the forests they occupy. These plants are often aggressive and generally unwanted, including such species as multi-flora rose, Japanese honeysuckle, buckthorn and, perhaps most damaging to forested areas, garlic mustard. Areas of forests that are not dominated by non-native invasive species or capable to be managed to minimize invasive plant impacts, that are threatened to non-forest use, will be a indicator for forestland quality for inclusion into the Forest Legacy Program.

Changing Demographics of Forest Landowners:

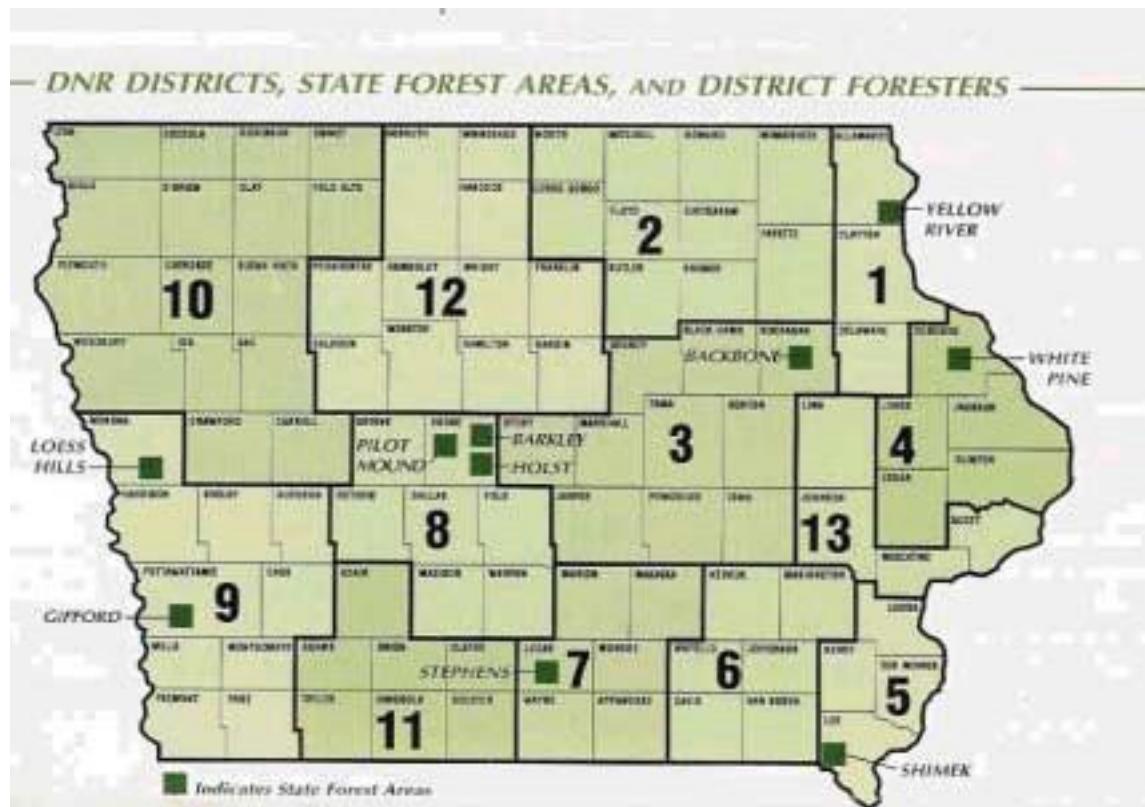
Farmers have been the key contact for private forest stewardship activities in Iowa since settlement. Although they still own over ½ of the forestland in Iowa now, farmers are aging and decreasing in number. People who own over 2/3 of Iowa's forests are over the age of 55 years and over 20% are over the age of 75 years. Many of these older forest landowners desire to retain their land in forest for their enjoyment and their families, but are often forced to sell or subdivide owing to economic issues. That could mean 1 forest property in 5 in Iowa could change ownership in the next 10 years. New forest land ownership offers new challenges and opportunities. New owners often are receptive to technical advice, but many are absentee landowners that have little background in managing forests. Educating citizens and landowners about the benefits and management needs of Iowa's forests is a major challenge. Far too many forest landowners are unaware of state and federal programs and services that offer help with sustainable forestry and forest management initiatives. Because of this lack of knowledge, many properties are damaged by the poor management practices that include improper roads, trails and log landing locations. The greatest risk to these forests continues to be the inappropriate harvesting of timber, which threatens the sustainability, productivity and health of Iowa's forests. Some of the risks associated with inappropriate timber harvesting include loss of land value and wildlife habitat, as well as the more significant risk of development sites leading to further fragmentation of forestland.

Current Protection Measures for Iowa's Forests

There are many on-going efforts to preserve, protect and enhance Iowa's forested lands and natural resources. Lands publicly owned and administered by Federal, state and local government organizations have a united goal of protecting Iowa's natural resources and enhancing its natural ecosystems to the greatest extent possible. The Iowa Department of Natural Resources offers a variety of federal and state programs designed to assist private forestland owners with the management and protection of their forest resources. They include the following:

Forest Stewardship Program:

The Forest Stewardship Program assists forest landowners with actively managing their forests for multiple resource benefits; thus encouraging long-term stewardship of privately owned forests. The program provides technical, planning and management assistance to landowners to enhance and protect the timber, water quality, fish and wildlife habitat, wetlands, and recreational and aesthetic values on their property. The DNR Forestry Bureau matches the USDA Forest Service funding to develop multi-resource management plans, called Forest Stewardship Plans, with forestland owners in the state. The stewardship plans layout landowner objectives and resource management opportunities, as well as cost-share incentives for enhancement.



Forestry Incentives Program

The Forestry Incentives Program (FIP) provides financial assistance to private landowners for tree planting and timber management. The program strives to increase the nation's supply of timber from private non-industrial forestlands. FIP shares the expense of managing woodlands and caring for trees those private landowners cannot afford, or do not have long-term incentives, to maintain. The program is administered by the USDA Natural Resources Conservation (NRCS), in partnership with the DNR Forestry Bureau. The amount of available cost-share annually is limited with approximately \$21,000 being available for 2001.

Conservation Reserve Program

The Conservation Reserve Program (CRP) places highly sensitive, highly erodible lands in conservation status or set aside in return for annual payments for a period of 10 to 15 years. The program's goal is to take environmentally sensitive cropland out of production and implement a conservation plan to reduce soil erosion and sedimentation, provide fish and wildlife habitat and improve water quality. Plans are approved by local soil and water conservation districts and implemented by the USDA Farm Services Agency and USDA NRCS. DNR foresters provide technical assistance in plan development and approval for reforestation, wildlife habitat and forest riparian buffers establishment on CRP lands.

Wetland Reserve Program

The Wetland Reserve Program (WRP) is operated by the USDA NRCS as a voluntary program for agricultural landowners desiring to restore and protect wetlands on their property through conservation easements. Landowners receive payments from the federal government for easements in order to place restored wetlands in a reserve status where they cannot be drained or plowed. Landowners must agree to implement wetland/wildlife restoration plans for croplands. The program makes wetlands that enhance habitat for migratory birds and other wildlife their first priority and provides 50 to 100 percent federal costs sharing for re-establishment of wetlands vegetation and maintenance.

Other Natural Resource Incentive Programs

There are other incentive programs that provide economic assistance to landowners, and have the potential to benefit forestland in Iowa on a broader basis. Other programs include the Wildlife Habitat Incentive Program (WHIP) and the Environmental Quality Incentive Program (EQIP). Currently, NRCS and DNR are focusing EQIP funds into forestry enhancement practices in northeast and southeast Iowa counties by offering cost-share incentives to expand timber stand improvement, tree planting and forest riparian buffer establishment on private lands. Recently, the Iowa NRCS

State Technical Committee voted to recommend that Tree Planting and Timber Stand Improvement be added as EQIP Statewide Practices beginning in FY2002.

Forest Reserve

Private forests in Iowa can qualify for property tax exemption through the Forest Reserve Program if their forests are:

- a minimum of two contiguous acres,
- possess a minimum of 200 trees per acre and
- protected from livestock grazing.

As of December 2001, a total of over 559,000 acres are classified in the Iowa forest reserve program in all 99 counties. There is no forest management requirement in the forest reserve program.

Forest Health Monitoring

Forest insects, diseases and environmental stresses on public and private lands are monitored across Iowa by the Iowa DNR. Monitoring information is used to develop management plans and activities. The DNR works with Iowa State University, Iowa Department of Agriculture and Land Stewardship- State Entomologist, USDA Forest Service, USDA Plant Animal Inspection Service and others to prioritize forest health management issues and develop appropriate management suggestions. DNR District and Area Foresters provide forest health management assistance to private forest landowners. In addition, the DNR cooperates with the Forest Health Monitoring Program of USDA Forest Service research.

Rural Fire Protection and Enhancement Services

The 600+ volunteer fire departments (VFDs) receive fire prevention materials, grant funds to purchase wildland fire tools and excess military equipment (vehicles) through coordination and cooperation with the USDA Forest Service and Iowa DNR to control wildland fires. The DNR has currently on its inventory over 611 long-term firefighting items possessed by the VFDs worth an estimated \$9 million. In addition, the DNR annually distributes approximately \$100,000 in USDA Forest Service Volunteer Fire Assistance funds (VFA) as grants to VFDs to purchase wildland fire tools, pumps, clothing and communications gear. Efforts are being expanded to do more outreach to the VFDs and private landowners on proper use of fire as a management tool and to mitigate potential wildfires due to the increase of the wildland/urban interface through Firewise planning and supporting the installation and maintenance of dry hydrants.

State Forest Lands Management

State Forests in Iowa totaling approximately 41,000 acres are managed and monitored to demonstrate forest management practices which yield forest products, wildlife habitat, soil and watershed protection and outdoor recreational opportunities. All State Forests are managed under ecosystem management principles. The Major State Forests in Iowa include the:

- Loess Hills State Forest (9,400 acres) in western Iowa,
- Yellow River State Forest (8,500 acres) in northeastern Iowa,
- Shimek State Forests (9,100 acres) in southeast Iowa and
- Stephens State Forest (13,300 acres) in south central Iowa.

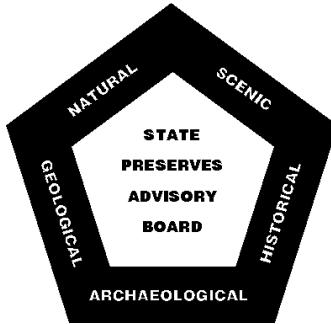
Resource Enhancement and Protection (REAP)

This is a multi-faceted, state-general funded program created in 1989 that has an appropriation to enhance soil and water conservation through reforestation and timber stand improvement. This soil and water conservation program for private lands is administered by Iowa Department of Agriculture and Land Stewardship- Division of Soil Conservancy and with technical assistance being provided by the DNR foresters. Approximately, \$250,000 is allocated to the 100 Soil and Water Conservation Districts for forestry incentive practices. Interest in the program is 2 to 3 times the amount of cost-share funds available. REAP also has some funding to assist in land acquisition for state, county and local government outdoor recreation and natural resources protection. Approximately \$500,000 to \$1,000,000 is available on an annual basis for public land acquisition and to pay for property taxes to local county governments.

Iowa Preserves

In 1965, the Iowa Legislature created the Iowa State Preserves System to identify and preserve, for this and future

generations, portions of our natural, pre- historical and historical heritage and to maintain preserved lands as nearly as possible in their natural condition. Today, there are 84 parcels encompassing 8,900 acres that have been dedicated as state preserves. These preserves range in size from less than 1 acre to 845 acres. State preserves are dedicated for permanent protection of significant natural and cultural features: (1) natural preserves - representing outstanding biological features, (2) geological preserves - illustrating Iowa's ancient past, (3) archeological preserves - illustrating native American cultural past, (4) historical preserves - illustrating early European- American settlement and (5) scenic preserves - illustrating outstanding beauty. Individuals and private conservation organizations own some sites. Cities and counties own others; many are owned by the state. Preserves are managed according to plans developed cooperatively by the owner, the State Preserves Board and the Iowa DNR.



Iowa Natural Heritage Foundation

The Iowa Natural Heritage Foundation (INHF) was incorporated in 1979 to serve as an effective avenue to utilize the full potential of private sector assistance in natural areas and resource protection. The INHF builds partnerships and educates Iowans to protect, preserve and enhance Iowa's natural resources for future generations. The current priorities of this member-supported organization include permanent land protection, trail and greenway establishment and promotion of improved land management. The INHF is very active in working with private landowners, government agencies and potential funding sources serving as a catalyst to bring about protective actions (acquisition, fee title, conservation easements, and donations, etc.). As a private entity, INHF enjoys a higher degree of flexibility and a swifter pace of action than is sometimes possible with government agencies. Its most recent land protection effort involved the acquisition of the 1,045-acre Heritage Addition to Effigy Mounds National Monument in Allamakee County.

The DNR has built a strong partnership with INHF in identifying potential landowners around Yellow River State Forest in Allamakee County in extreme NE Iowa, who may have interest in conservation easements and forest stewardship planning. The Executive Director of the INHF serves on the Iowa State Forest Stewardship Committee and the Forest Legacy Subcommittee.

The Nature Conservancy of Iowa

The Nature Conservancy of Iowa, a non-profit organization, is focused on the long-term protection and state of Iowa's natural communities. Founded in 1963, the Nature Conservancy owns or has acquired conservation easement over 6,000 acres in 35 preserves across the state in the Loess Hills, Driftless Area, Lower Cedar River Valley, Little Sioux River Valley and the Grand River Grasslands. The Nature Conservancy strives to balance human needs and ecological health. They use land acquisition, conservation easements, management assistance, landowner outreach and a voluntary registry program with individual private landowners to identify the best methods for long term protection.

The DNR has been working in partnership with the Nature Conservancy on identifying lands in the Loess Hills for inclusion into the Loess Hills State Forest, as well as resource management efforts to restore oak savannas and native prairie in western Iowa. The Iowa Nature Conservancy serves on both the State Forest Stewardship Committee and the Forest Legacy Subcommittee.

County Conservation Boards

All 99 counties in Iowa have a county conservation board formed under provisions of Chapter 350 in the Code of Iowa. These boards are authorized to "acquire, develop, maintain and make available to the inhabitants of the county, public museums, parks, preserves, parkways, playgrounds, recreational centers, county forests, wildlife and other conservation

areas, and ... encourage the orderly development and conservation of natural resources and to provide adequate programs of public recreation." Iowa's County Conservation Boards provide over 1,603 public areas with 153,690 acres of park and forestland for wildlife management, public recreation and other endeavors. These properties are often scattered across the state, and the scope of management depends upon the county conservation board budget and the interest of the director, their staff and the board.

The Iowa DNR has a long history of partnership with the County Conservation Boards as multiple units and individual county units in managing county and private lands within watersheds for multiple benefits.

Forest Legacy Program in Iowa - Addressing the Problem

Why a Forest Legacy Program in Iowa?

Iowa's forests are increasingly under pressure from development and land use conversion, continuing a cycle of fragmentation that has characterized Iowa's forestland loss for the last century. As we prepare for the future of Iowa's forests, protecting threatened forest areas, and the values associated with that land, is our number one priority.

The Forest Legacy Program in Iowa will address the need to maintain working forests on private lands that bordering or are nearby publicly-owned or permanently protected forest land which is currently under threat of parcelization, leading to conversion to non-forest uses including conversion to agriculture, gravel pits and residential and commercial development. Important forest lands that are designated Forest Legacy Areas will be eligible for funds to protect individual tracts of land by the purchase of selected development rights leaving their owners with all other rights to their properties, or through outright purchase. In order to become a Forest Legacy Area, lands will be evaluated by eligibility criteria developed through work between the DNR and the Forest Stewardship Committee Forest Legacy Subcommittee described in this document. Forest Stewardship Plans developed by a professional forester, or multi-resource management plans, will be required to be prepared and implemented for any forestland requesting Forest Legacy designation.

Goals of the Forest Legacy Program in Iowa:

1. To protect environmentally important private forests that are threatened by conversion to non-forest uses, such as conversion to agriculture, gravel pits/mining and residential or commercial development.
2. To protect Iowa's publicly owned or permanently protected forested tracts from environmental threats caused by the development of nearby forest areas.
3. To prevent and reverse the fragmentation/parcelization of Iowa's contiguous forests by reconnecting parcels of land and keeping forests in contiguous parcels.
4. To preserve the beauty and public enjoyment of Iowa's forested landscape.

Critical Issues/Definitions for Iowa's Forest Legacy Program:

Iowa's land and its forest component are one of the most distributed and altered landscapes in North America. Rare is the acre of Iowa forest that has not been impacted by agriculture from crop management to livestock grazing. In order to uniformly identify the critical impacts and management needs of Iowa's forests, the following uniform definitions of important legacy terminology were accepted by the Iowa Department of Natural Resources and the State Forest Stewardship Committee.

Environmentally important forests - a forest that contains one or more of the following important public values:

1. Scenic or significant view shed values such as overlooks, vistas or is visible from main highways or public trails,
2. Recreation opportunities for public access for such uses as hunting, fishing, hiking, biking etc.,
3. Riparian areas that are adjacent to major waterways, drinking water supplies and public lakes,
4. Unique and or contiguous fish and wildlife habitat,
5. Known threatened and endangered plant and animal species dependent upon forests habitat,
6. Known unique archeological, cultural and geological resources that could be lost or damaged,
7. Opportunities for the continuation of traditional forest uses, such as management, timber harvesting and other commodity use and outdoor recreation that benefit economic values in neighboring communities,

Forested areas will be considered environmentally important if it also contains one or more of the following public

values:

8. Borders or enhances the natural values of existing federal, state or local government-owned or permanently protected forests or non-governmental organizations forests (NGOs) or other permanently protected forests,
9. Protects and enhances water quality and watershed values of a public drinking water supply.
10. Contains unique or isolated tree species and forest stand conditions (old growth or oak savanna).
11. Key to minimizing local forest fragmentation and,
12. Allows opportunities for continuation of traditional forest management and use.

Traditional forest use - utilization of the forest or its parts in a sustainable way for wood production, wildlife habitat, outdoor recreation, scenic enjoyment, watershed protection and erosion control.

Threatened forest - Forest areas that could be converted to non-forest or seriously altered forests due to ownership change, conversion to agriculture, gravel/mining and/or residential/commercial development. Forests could be threatened through non-native invasive plant introductions impacting the survival of native vegetation

Protection - the process of stopping conversion of forests to non-traditional forest uses or preventing serious forest alteration that prevents sustainability through legal means.

Forest Management - the process of ensuring long-term sustainability through active silviculture and other forestry methods.

Forest Stewardship Plan - a management plan developed by a professional forester and approved by the Iowa DNR to examine all the values of the forests with the objectives of ownership to ensure a sustainable forest.

Eligibility Criteria for a Forest Legacy Area

To be eligible as an Iowa Forest Legacy Area, an area's forestland must meet all of the following criteria:

1. Potential Forest Legacy Areas must be an Environmentally important forest area previously defined and addresses one or more of the following public values:
 - scenic resources;
 - public recreation;
 - riparian areas;
 - unique, rare, threatened or endangered species;
 - archeological, cultural or geologic features;
 - borders or is close to existing public or permanently protected forests; unique or isolated tree species/stand conditions, and
 - provides opportunities for continuation of traditional forest uses (traditional/non-traditional forest products utilization, watershed protection and recreational opportunities such as hiking, bird watching, hunting and fishing).
2. Forested areas could be threatened by present or future conversion to non-forest uses by ownership change, conversion to agricultural use, gravel pits/mining and/or residential/commercial development. Forests could be also be threatened by non-native invasive plants spreading and replacing native vegetation.

Proposed Forest Legacy Area Descriptions

Detailed descriptions of each of the seven Forest Legacy Areas recommended by the Iowa Forest Stewardship Committee follow. The areas are distributed across the State of Iowa and cover several natural regions of the state. The individual discussions of each Forest Legacy Area includes specific information about the given Forest Legacy Area, including:

- General Description
- Description of Boundaries of the Forest Legacy Area
- State/Federal Managed Lands with the Forest Legacy Area
- Description of the Important Values within the Forest Legacy Area
- Current and Potential Conversion Pressures

- Goals and Objectives for the Specific Forest Legacy Area

Those items common to each of the Forest Legacy Areas are the government entities that may be assigned management responsibilities and the Means for Protection, addressed below:

Identification of governmental entity that may be assigned management responsibility

The Forest Legacy Program in Iowa will be implemented through a State Grant Option, by which the State of Iowa will hold title to all conservation easements or deeds for acquired tracts of forestland entered into the Forest Legacy Program in Iowa. The Iowa Department of Natural Resources (DNR), Forestry Bureau is the lead agency for this program, with consultation through the Iowa Forest Stewardship Committee.

The State of Iowa, DNR Forestry Bureau will hold title to all acquisitions made through the Forest Legacy Program in Iowa, in coordination with the DNR's Land Acquisition Bureau. The DNR Forestry Bureau may elect to delegate management and administration of individual tracts of land within the Forest Legacy Program to another agency within the DNR, or to other organizations or government entity, including land trust or other conservation groups.

Means for Protection of Forest Legacy Area Tracts

- Acquisition of tracts of forestland will primarily be accomplished through conservation easements, as the preferred method. However, were the situation is warranted, acquisition of full-fee may be utilized as an appropriate method of acquisition.
- Acquire development rights on all tracts. Those rights include, but are not limited to the right to construct buildings and other improvements, remove forest cover for non-forest uses and control utility right-of-way locations.
- Timber rights retained by the landowner shall follow guidelines set forth in the Forest Stewardship Plan approved by the Iowa State Forester or his designee, and include the use of Forestry Best Management Practices (BMPs), applicable laws and regulations and with the following provisions:
 - ✓ All timber harvesting for a tract or tracts shall be in consultation with a professional forester and all logging conducted by state Bonded Timber Buyers. Departures from sustained forest management are permitted only in limited response to outbreaks of forest insects and disease and salvage in the event of fire or natural disasters.
 - ✓ Timber harvesting or cutting is according to Iowa's Forestry Best Management Practices and within the guidelines of the individual Forest Stewardship Plan.
 - ✓ Forest Stewardship plans shall be reviewed and updated as needed at least once every ten years.
- Consider acquisition of public access rights on each tract (not required). Determine on a case by case basis the need for public access vs. the potential threat for land conversion. The Iowa Forest Stewardship Committee will make final recommendations concerning public access provisions for any said tract to the State Forester. The Iowa State Forester will make final decisions prior to the start of negotiations.
- Restrict development of mineral or oil and gas rights to allow no more than 10 percent of the surface occupancy of the Forest Legacy tract, with total area of all non-forest uses not exceeding 10 percent of the total tract area. Upon landowner completion of operations, the land shall be reclaimed as much as practical to its original contour and reforested.
- No disposal of waste or hazardous material will be allowed on properties in the Forest Legacy program in Iowa.
- Prohibit the use of signs and billboards on all properties, except to state the name and address of the property owner and/or provide Forest Legacy or other forestland incentive/recognition programs, such as Tree Farm, etc.
- Existing dams or water impoundments or similar structures may be allowed to remain and be maintained. The Forest Stewardship Committee who will make recommendations to the State Forester for his final approval/denial will review exceptions or new impoundments on a case by case basis.
- Any revisions to the easement regarding existing structures may be made only upon approval by the government holding title to the easement.
- New or expansion of industrial, commercial or residential activities, except traditional forest uses will be reviewed on a case by case basis by the Iowa Forest Stewardship Committee. The Forest Stewardship Committee will then make recommendations to the State Forester for his final determination.
- A parcel must have a Forest Stewardship plan completed by a professional forester and approved by the State

Forester or his designee before entering the Forest Legacy Program. This Forest Stewardship plan must be current and updated at least every 10 years or as needed.

- Each conservation easement will contain appropriate clauses to address the goals and objectives of the individual Forest Legacy area. Such clauses may include, but are not limited to the following:
 - ✓ Scenic Resources - where local, state or nationally designated scenic routes, bike trails, hiking trails or area would be impacted, design timber harvests and timber stand improvement work to minimize aesthetic impacts.
 - ✓ Public Recreation - where appropriate acquire public recreation access easements for public recreation such as hiking, hunting and fishing.
 - ✓ Riparian Areas - where appropriate, limit impacts to riparian zones during traditional forest uses by following Iowa Forestry Best Management Practices, develop species control measures in aquatic communities to minimize negative impacts of invasive species. These measures should be addressed in the Forest Stewardship plan.
 - ✓ Unique, Rare, Threatened or Endangered Species - where identified unique, rare, threatened or endangered species of animals or plants exist on the Forest Legacy tract, the Forest Stewardship plan must address their protection and appropriate management.
 - ✓ Archeological, Cultural or Geologic Features - if a tract contains known archeological, cultural or geologic features, the Forest Stewardship plan must address their protection.
 - ✓ Borders existing public or permanently protected forests - where the tract borders existing public or permanently protected forests, the Forest Stewardship plan will address the use of appropriate buffer zones during traditional forest use.
 - ✓ Unique or Isolated Tree Species/Stand Conditions - if a tract contains known unique or isolated tree species/stand conditions such as old growth or savannas, the Forest Stewardship plan will address appropriate management efforts.
 - ✓ Invasive Species - limit the terrestrial plant and animal stocking activities (particularly exotic species) to minimize negative impacts on native ecosystems. Such stocking and invasive species control and management efforts should be addressed in the Forest Stewardship plan.

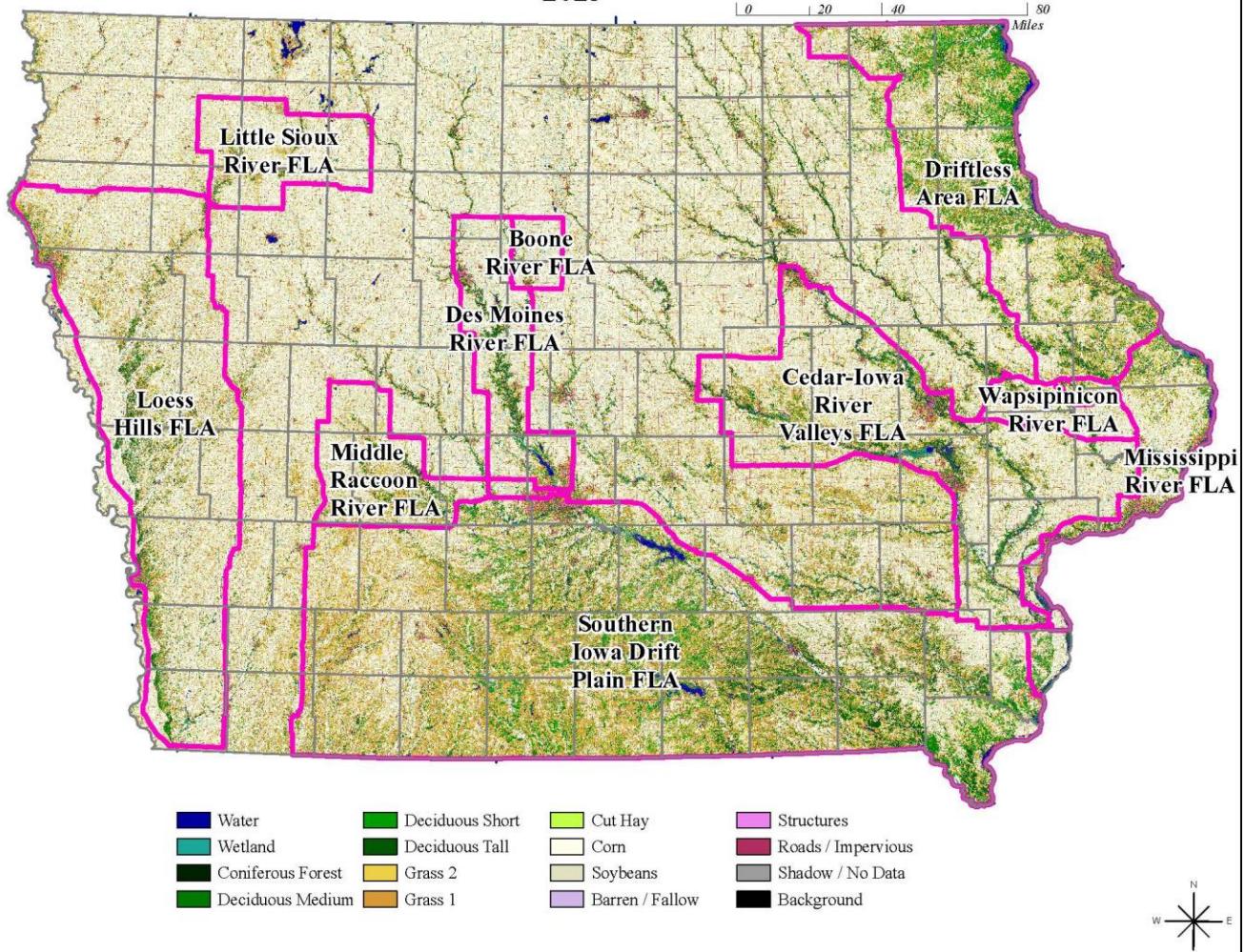
Proposed Forest Legacy Areas

The Iowa Department of Natural Resources, Forests & Prairies Division and the Forest Legacy Subcommittee recommends the following forested areas in Iowa are designated Forest Legacy Areas.

1. Loess Hills
2. Upper Des Moines River Valley
3. Mississippi River Blufflands
4. Iowa/Cedar River Valleys
5. Driftless Area
6. State-protected waterways
7. Southern Iowa Drift Plain

Forest Legacy Areas in Iowa

2023



Loess Hills Forest Legacy Area

General Description

The Loess Hills Region is the most unique natural area remaining in Iowa today. The area was formed thousands of years ago by finely ground material washed out of melting glaciers that was deposited by prevailing westerly winds and deposited in a band of hills which resemble huge snowdrifts along the Missouri River floodplain. While loess, which is the major soil composition of the Loess Hills area, is fairly common in the world, it rarely reaches the depth and relief of the western Iowa loess. The rugged nature of these hills has prevented their conversion to cropland and has protected them from overgrazing by livestock. Some hills today appear as the first native Americans and pioneers first saw them, the former considering the land looking over the broad Missouri to be sacred ground.

Description of Boundaries of Forest Legacy Area

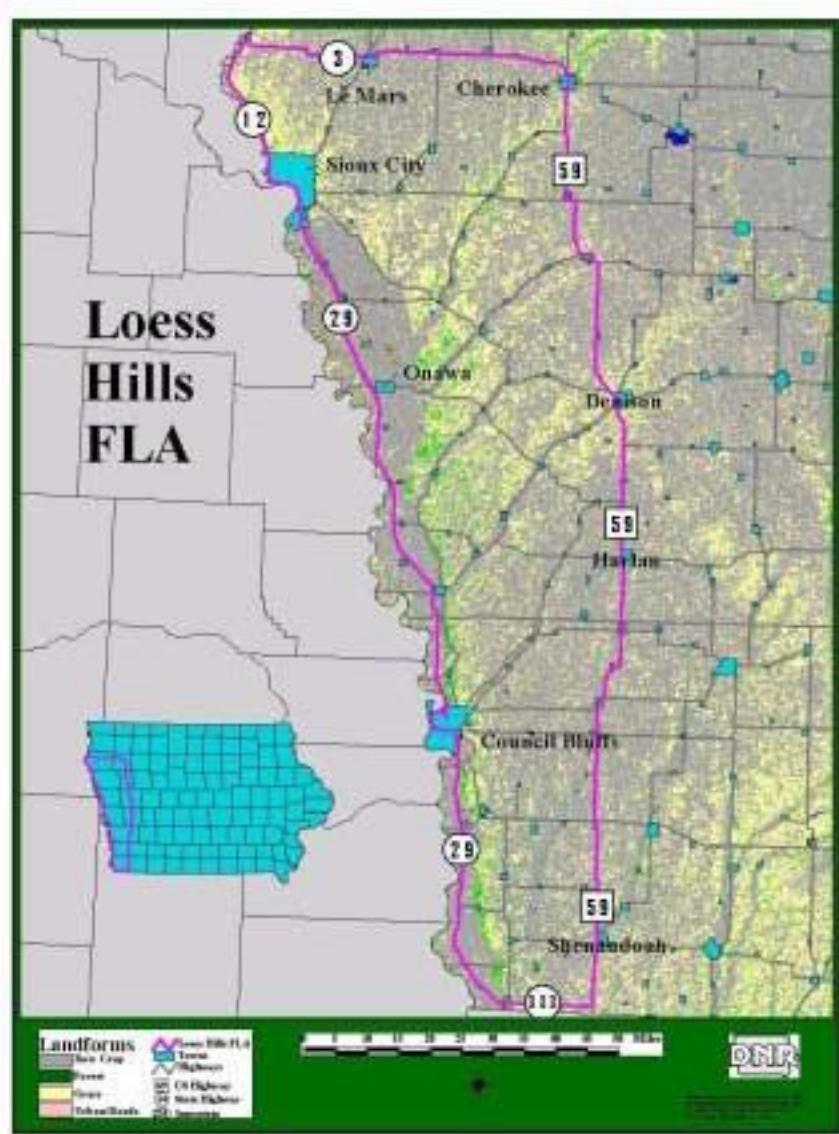
The Loess Hills Forest Legacy Area follows the unique geological formation of the Loess Hills stretching from Plymouth County near the Nebraska/South Dakota border in the north to Fremont County near the Nebraska/Missouri Border in the south. Specifically, the northern boundary of the Loess Hills Forest Legacy Area will start at the City of Akron at the intersection of State Highway 3 and 12, then east along Highway 3 to the City of Cherokee, south along U.S. Highway 59, west on State Highway 333, north on Interstate 29, north on State Highway 12 to the City of Akron.

State/Federal Managed Lands within the Forest Legacy Area

State and Federal managed lands within the Loess Hills Forest Legacy Area include: the Loess Hills State Forest (10,000 acres), Stone State Park (1,069 acres), Preparation Canyon State Park (344 acres) and Waubonsie State Park (390 acres).

Description of the Important Environmental Values

Private ownership dominates the forests of the Loess Hills Forest Legacy area. A national scenic byway was established the length of the Loess Hills offering overlooks and vistas of this unique geological formation. The forests are composed of oak-hickory woodlands, rare oak savannas, bottomland hardwoods and redcedar successional areas. These forests are contiguous offering unique and critical habitat for native plant and wildlife species, including several threatened and endangered species. These forests are beginning to offer increase public recreational opportunities for hunting, fishing, hiking and camping. These forests protect the fragile loess soils from erosion and limiting sedimentation in city drinking water supplies.



Current and Potential Conversion Pressures

This forest legacy area is threatened from continued fragmentation into residential hobby farms (urban/rural interface). Interstate 29 interchanges invite residential and commercial development, and provide high-speed transportation corridors for commuters. Native American and Riverboat casinos located at Onawa, Sioux City and Council Bluffs, Iowa employ a large number of people and increase development pressure on the area. The continued mining of fill for the development of urbanization is a serious concern threatening the Loess Hills in the ever growing metro areas of Omaha-Council Bluffs and Sioux City.

Goals and Objectives for the Loess Hills Forest Legacy Area

Goal: To reduce fragmentation and reduce the threats of mining for fill of private forests bordering or near federal, state county government or permanently protected forest holdings.

Objectives: to use conservation easements, purchase of other development rights fee acquisition and forest stewardship planning on private lands to:

- reduce forest fragmentation thereby maintaining contiguous forest resources,
- protect boundaries and natural resource management opportunities on federal, state, county government or permanently protected forests,
- protect unique and critical habitat for native plant and wildlife species,
- provide increased opportunities for outdoor recreation, and
- protect fragile loess soils from erosion.

Upper Des Moines River Valley

General Description

Deep valleys and wooded, moist habitats characterize the landscape along one of Iowa's major rivers. The Upper Des Moines River Valley provides a pathway for the migration of numerous animals and migratory birds every spring and fall. This area provides a habitat to Iowa's rare and threatened plant and animal species and many of its remaining wild species. Nesting hawks, and many other birds and squirrels, nestle into the fragmented floodplain forests and endangered communities that spring up along this specialized niche. One of these specialized niches, Woodsman Hollow, is a literal botanical treasure trove located adjacent to the Upper Des Moines River, and is home to a large population of unusual ferns.

Description of Boundaries of the Forest Legacy Area

The Upper Des Moines River Valley is forested from Humboldt County in North Central Iowa to the Saylorville Lake Dam in Polk County just north of the City of Des Moines, Iowa.

Private ownership dominates the Forest Legacy area's forestland. Specifically, the Upper Des Moines River Valley Forest Legacy Area northern boundary is at the intersection of State Highway 3 and U.S. Highway 169 at the City of Humboldt, east along State Highway 3 to the City of Goldfield, south along State Highway 17 to the City of Madrid, east along State Highway 210 to Interstate 35 south, south along Interstate 35, west along Interstates 80/35 to State Highway 141 north, west along State Highway 44, north along U.S. Highway 169 to the City of Humboldt.

State/Federal Managed Lands within the Upper Des Moines River Valley Forest Legacy Area

State and Federal managed lands within the Upper Des Moines River Valley Forest Legacy Area includes: Dolliver Memorial State Park (600 acres), Ledges State Park (1,200 acres), Big Creek State Park (3,550 acres), Brushy Creek State Recreation Area (6,500 acres) and Jester County Park (300 acres). There are several large natural park areas owned and managed by the City of Fort Dodge, Iowa in this area as well.

Description of Important Environmental Values

The forests in the Des Moines River Valley exist primarily on upland slopes and floodplain areas too steep for agriculture. The forests are dominated by oak-hickory, maple-basswood and silver maple-green ash-cottonwood. The Upper Des Moines River Valley forests protect major U.S. Army Corps of Engineer recreational/flood control lakes at Saylorville and Red Rock Reservoirs. State and County parks within this Legacy Area are some of the most heavily utilized recreational areas in the state due to their proximity to the Des Moines-Ames metro areas. These forests offer scenic overlooks and vistas containing unique cultural and geological resources. The forests are contiguous and offer critical fish and wildlife habitat, along opportunities for continuation of traditional forest management activities. Sawmill and wood producing operations in Boone, Des Moines, Redfield and Webster City depend upon the working forests in the Legacy Area for their raw materials.

Current and Potential Conversion Pressures

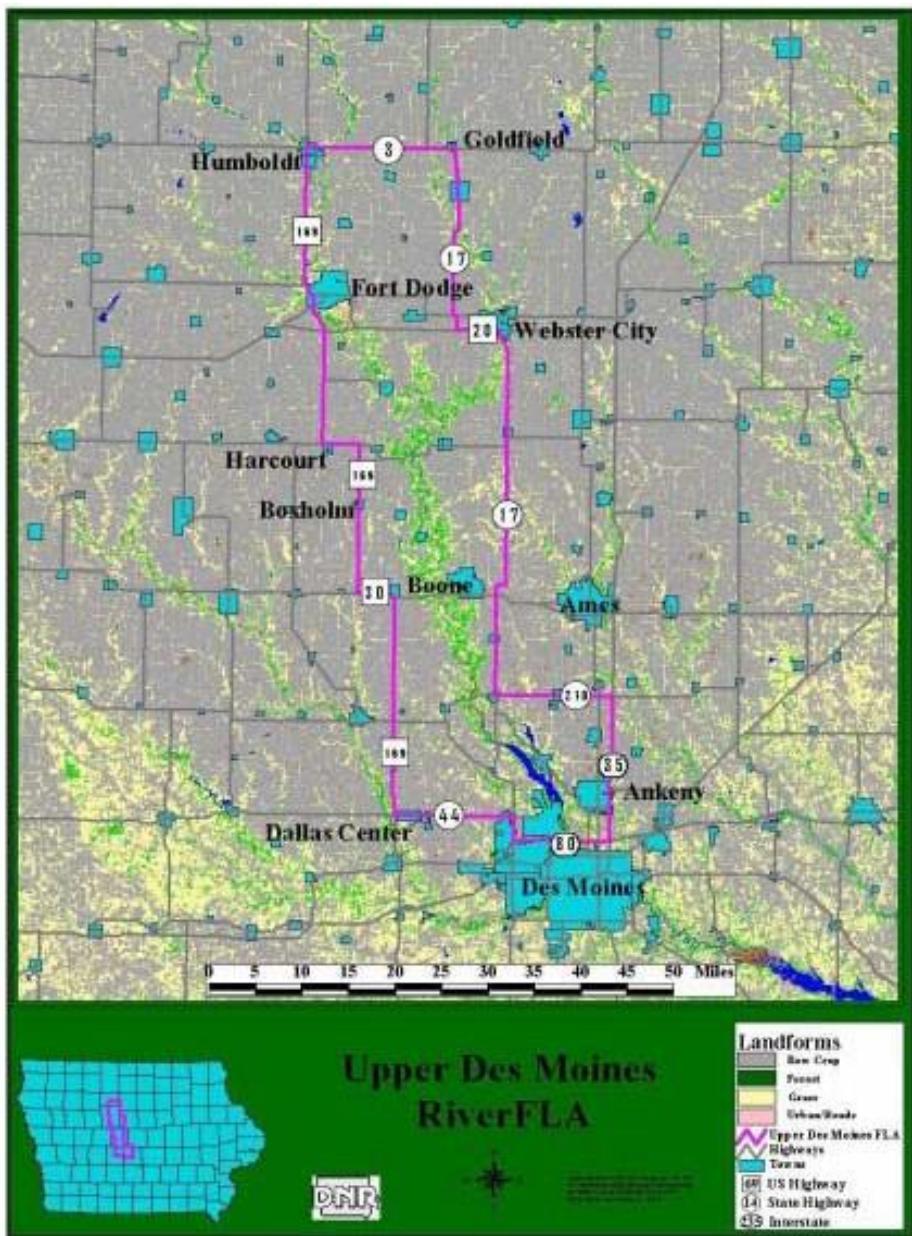
The Des Moines metro area is expanding into this Forest Legacy Area. Hobby farms and larger houselots fragment the resource, with choice house lots being located near federal (Corps of Engineers) and State (DNR) ownership limiting natural resource management efforts. All indications are that this trend will continue, forcing forestland values to increase, spurring additional development pressures on forest landowners.

Goals and Objectives for the Upper Des Moines Forest Legacy Area:

Goals: To reduce fragmentation of private forests bordering or near federal, state, county government or permanently protected forest holdings.

Objectives: to use conservation easement, purchase of development rights, fee acquisition and forest stewardship planning on private lands to:

- reduce forest fragmentation thereby maintaining contiguous forest resources,
 - protect boundaries and natural resource management opportunities on federal, state, county or permanently protect forests,
 - protect scenic overlooks and vistas,
 - protect unique cultural and geological resources,
 - protect critical fish and wildlife habitat,
 - provide opportunities for continued traditional forest management activities that provides raw materials for the forest products industry, and
 - protect riparian forest watershed values.



Mississippi River Blufflands

General Descriptions

In scattered spots along the Mississippi River Valley remnants of native forest both on steep bluffs and level floodplains/islands can still be seen. Though much of this land has been stripped for agricultural use and drainage, many bluffland and floodplain forests still thrive along this great river. These undisturbed, bluffland and riparian communities are some of Iowa's most endangered community types from real estate development and fragmentation. Serving as transportation for goods and supplies, as well as people, for hundreds of years, the Mississippi River Blufflands Forest Legacy Area is dotted by numerous settlements. Some of the oldest cities in Iowa are located along the great river, including the Cities of Bellevue, Bettendorf, Clinton, Davenport and Muscatine.

Description of Boundaries of Forest Legacy Area

The Forests of the Mississippi River Blufflands extend along Iowa's eastern border with Illinois. The Mississippi River Blufflands Forest Legacy Area stretches from Jackson County in the north to Louisa County in the south. The forests within the Mississippi River Blufflands Forest Legacy Area are primarily owned by private landowners. Specifically, the northern boundary of the Mississippi River Blufflands Forest Legacy Area starts at the City of Bellevue, Iowa south along the banks of the Mississippi River to Lake Odessa State Wildlife State Wildlife Area and the City of Toolesboro. Then the area goes west along State Highway 99 (the Great River Road), northeast along U.S. Highway 61 and State Highway 92, north along Interstate 280, east along Interstate 80, north along U.S. Highway 61 to the City of Maquoketa, northwest along State Highway 62 to the City of Bellevue.

State/Federal Managed Lands Within the Mississippi River Blufflands Forest Legacy Area

State and Federal managed lands within the Mississippi River Blufflands Forest Legacy Area includes: several forested Islands managed by the U.S. Army Corps of Engineers involving the Upper Mississippi River National Wildlife Refuge and the Mark Twain National Wildlife Refuge. Other important public ownership in the Forest Legacy Area are Bellevue State Park (707 acres), and Wildcat Den State Park (423 acres).

Description of the Important Environmental Values

The forests of the Mississippi River Blufflands Forest Legacy Area are a combination of high quality blufflands - upland forest of oak-hickory and sugar maple-basswood and floodplain - riparian forests and islands of silver maple-cottonwood. The upland forests are on extreme steep slopes and along with the floodplain forests are a critical for protecting drink water supplies, recreational opportunities and flood control. This Forest Legacy Area possesses important nesting sites for the red-shouldered hawk and the bald eagle. This is a critical corridor for migratory birds. These bluffland riparian areas also serve as buffer between the river and the upland agricultural community, protecting and cleaning the waters running into the Mississippi River drainage. The Forests of this Forest Legacy area offer opportunities for the continuation of traditional forest management activities involving the high-quality hardwood resources that influences economic opportunities for sawmills in the communities of Mount Pleasant, and Fort Madison, Iowa to the west and south of this area. They also hold unique cultural and geological resources.

Current and Potential Conversion Pressures

The Blufflands area is one of the last areas in Iowa, where large parcels of contiguous forestland remain. Many of these large parcels of private forests border public forest holdings. The senior citizen demographics of forest ownership in this region indicate a great potential for landowner turnover in the next 10 years. In recent years the area has been experiencing increasing forestland values as second homes and recreational parcels for absentee landowners. Private forestland owners along with the Iowa Natural Heritage Foundation have commented on increased subdivisions of these last remaining large parcels of valuable forestlands being more common. With the close proximity to Chicago, Minneapolis-St. Paul, Rochester, MN and Madison, WI, absentee landowner trends are predicted to continue, and with affordable prices for smaller parcels, forest fragmentation will undoubtedly occur.

Goals and Objectives for the Mississippi River Blufflands Forest Legacy Area

Goal: To reduce fragmentation and protect water quality values of private forests that border or are near federal, state, county or permanently protected forests.

Objectives: to use conservation easements, purchase of other development rights, fee acquisition and forest

stewardship planning to:

- reduce forest fragmentation and maintain contiguous forest resources,
- protect boundaries and natural resource management opportunities on federal, state, county or permanently protected forests,
- reduce soil erosion and protect water quality,
- provide critical fish and wildlife habitat,
- provide outdoor recreation opportunities,
- provide opportunities to continue traditional forest management that provides resources for economic development of rural communities, and
- protect unique archeological, cultural and geological resources



Cedar/Iowa River Valleys

General Description

The Cedar and Iowa Rivers run from heavily agricultural areas of north central Iowa through the Cities of Waterloo/Cedar Falls, Cedar Rapids and Iowa City to their final destination at the Mississippi River. The forests within this Forest Legacy Area exist on steep slopes or floodplain areas. The forests along these steep slopes are upland species of oak-hickory, while the floodplain forests are silver maple-green ash-cottonwood.

Description of Boundaries of Forest Legacy Area

The Cedar/Iowa River Valley Forest Legacy Area extends from North Central Iowa, joining together at Columbus Junction, Iowa then emptying into the Mississippi River at Lake Odessa State Wildlife Area. Specifically, this Legacy area starts at the intersection of State Highway 57 and U.S. Highway 218 in the City of Cedar Falls. It runs south along Interstate 380, east along State Highway 65, then south on State Highway 13. It then goes east along U.S. Highway 30, south along State Highway 38, east along Interstate 80. It then goes south along State Highway 38/U.S. 6, southwest along U.S. Highway 61. It heads east along State Highway 99 and west along Louisa County Highway H22. It then heads west along State Highway 78, north along U.S. Highway 218, west On Interstate 80, west on U.S. Highway 6 to the City of Grinnell. Then the Forest Legacy Area goes north on State Highway 146, west on U.S. Highway 30 to the City of Marshalltown. It runs north on State Highway 14, east on State Highway 96, north on U.S. Highway 63, north on State Highway 58 to the City of Cedar Falls, Iowa. Private ownership dominates the Cedar/Iowa River Forest Legacy area.

State/Federal Managed Areas within the Cedar/Iowa River Valley Forest Legacy Area

Managed Federal and State Forest areas within the Cedar/Iowa River Valleys Forest Legacy Area includes: George Wyth State Park (1,200 acres), Pleasant Creek State Park (1,927 acres), Palisades-Kepler State Park (840 acres), and Lake Odessa Wildlife Area (5,000 acres). Along the Iowa River, the Corps of Engineers controls a large flood control/recreational lake at Coralville Reservoir. This Forest Legacy area contains the drinking water supply watersheds for the Cities of Waterloo-Cedar Falls, and Cedar Rapids-Iowa City. In addition, the historic Amana Colonies Forests, the largest private forest ownership in Iowa (7,000+ acres) are located within this Forest Legacy area.

Description of the Important Environmental Values

The private forests within the Cedar/Iowa River Valleys Forest Legacy Area help to provide drinking water supplies for the cities of Cedar Falls, Waterloo, Cedar Rapids, Iowa City and many other smaller communities. The forests of the Cedar and Iowa Rivers provide recreational opportunities along with critical fish and wildlife habitat. These forests have long been important for the timber industry in Iowa, as markets for silver maple and high-quality oak help sawmills in Belle Plaine, Edgewood, Vinton and Wyoming, Iowa.

Current and Potential Conversion Pressures

Currently, urban sprawl is parcelling forestland around the metro areas of Cedar Falls/Waterloo and Cedar Rapids/Iowa City, impacting contiguous forest wildlife habitat and traditional forest management opportunities. Continued parcelization is expected to continue as farming becomes less attractive financially and land subdivision increases. Forested parcels especially near public holdings are highly sought by developers. This continued forest fragmentation would impact the riparian values of the forests within this Legacy Area. The Forests of the Cedar/Iowa River Valley Forest Legacy Area have in the last decade taken severe impacts from storms and flooding. During 1998, over 10,000 acres of private forests within the Iowa River Valley were either broken or blown over by a 100-mph straight wind/tornado.

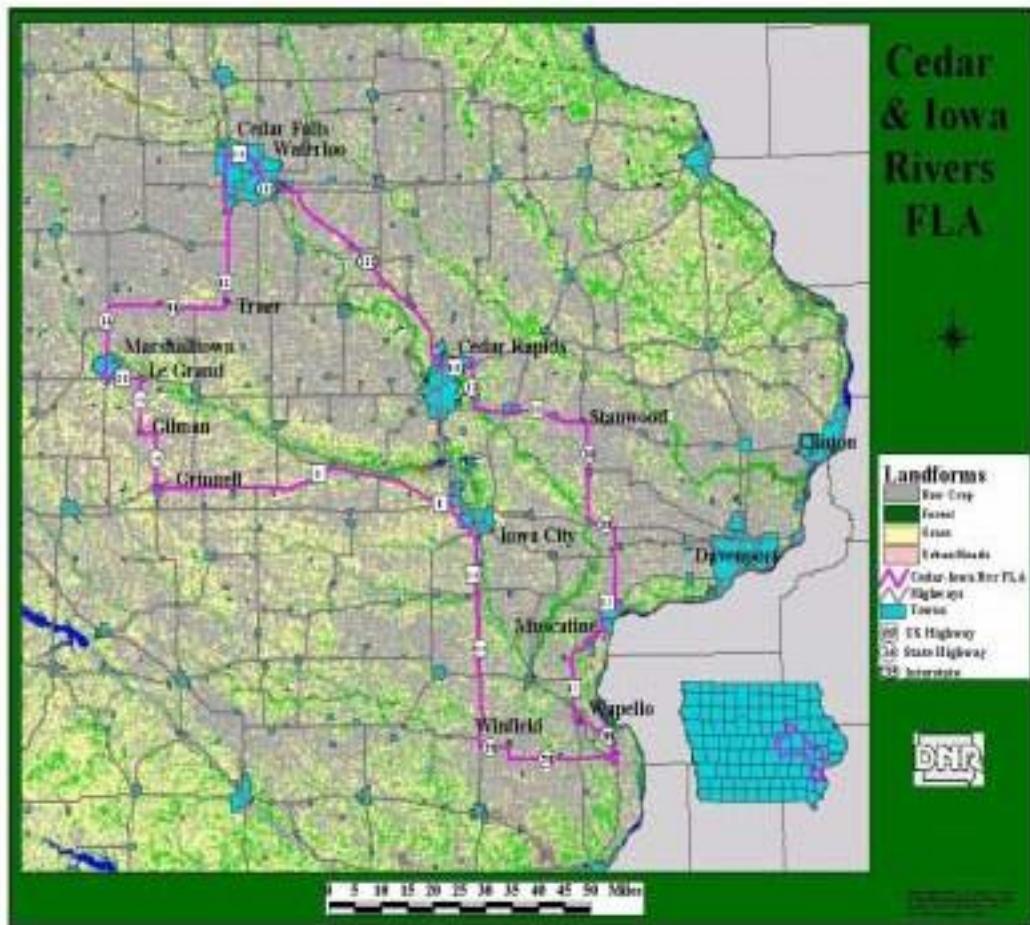
Goals and Objectives for the Cedar/Iowa River Valley Forest Legacy Area

Goal: To reduce forest fragmentation and water quality values of private forests that border or are near federal, state, county or permanently protected forests.

Objectives: to use conservation easements, purchase of other development rights, fee acquisition and forest stewardship planning to:

- maintain contiguous forest resources,
- maintain and expand riparian forests,
- protect boundaries and natural resource management opportunities on federal, state, county or permanently

- protected forests,
- provide critical fish and wildlife habitat,
- provide opportunities for outdoor recreation, and
- provide opportunities to continue traditional and sustainable forest management that benefits the economy of rural communities.



Driftless Area

General Description

Located in extreme northeast Iowa counties of Allamakee, Clayton, Dubuque, Fayette, Jackson and Winneshiek, the Driftless Forest Legacy Area contains some of the last remaining large parcels of forestland in Iowa. The Driftless Forest Legacy Area given its name because of its lack of glacial deposits or “drift,” the topography is Iowa’s most rugged and scenic, and is also home to a considerable portion of Iowa’s remaining forestland.

Description of Boundaries of Driftless Forest Legacy Area

The Driftless Area exists in extreme Northeast Iowa counties of Allamakee, Clayton, Dubuque, Fayette, Jackson and Winneshiek, bordering the states of Illinois, Minnesota and Wisconsin. Specifically, the Driftless Forest Legacy Area starts at the Minnesota state border at U.S. Highway 52, south along Highway 52 through the City of Decorah, then south to State Highway 150. It then runs south on State Highway 150, then east/south along State Highway 187, and east along U.S. Highway 20. It then runs south along State Highway 38, east along State Highway 64 to the City of Maquoketa. It then runs northeast along State Highway 62 to the Mississippi River, then north along the Mississippi River to the Iowa/Minnesota state border near the City of New Albin, then west along the state boundary to U.S. Highway 52.

State/Federal Managed Lands within the Driftless Forest Legacy Area

State and Federal managed lands within the Driftless Forest Legacy Area includes: Yellow River State Forest (9,000 acres), Pikes Peak State Park (970 acres), Volga River State Recreation Area (5,500 acres), Maquoketa Caves State Park (300 acres), Bixby State Park (184 acres), Backbone State Park (2,000 acres) and Effigy Mounds National Monument

(3,000 acres). The Forest Legacy Area also includes valuable county and city park areas, such as the City Parks of Dubuque, Iowa. The Driftless Forest Legacy Area contains the protected waterway areas of the Upper Iowa River and its watershed.

Description of the Important Environmental Values

Because of the extremely dissected nature of the land, this area is also home to many microhabitats. Along the cool, north-facing slopes are ice caves, through which cold airflows, that create a boreal habitat capable of sustaining golden saxifrage, monkshood and bunchberry plants. The practically extinct small land snail, a holdover from the Ice Age, makes its home in this region. The land snail is currently found nowhere else in the world, and two lichens, lungwort and umbilicaria, grow nowhere else in the state of Iowa. The Driftless Area is also home to some of Iowa's best trout streams. The Upper Iowa River Watershed includes Iowa's only tie to prehistoric times, with native populations of balsam fir and white pine. This heavily forested river watershed contains unique areas, threatened and endangered plants, and possesses the highest quality fisheries in the state. The forests of the Driftless area exist on extremely steep slopes (>28%) and consist of high-quality hardwoods of Oak-Hickory and Sugar Maple-Basswood. The forests provide scenic overlooks and vistas, providing countless opportunities for public recreation on public and private lands. Traditional forest management activities occur throughout the area due to the high quality of the trees, providing income to forest landowners and helping to employ sawmills in Dubuque, Elkader, and Guttenberg, Iowa.

Current and Potential Conversion Pressures

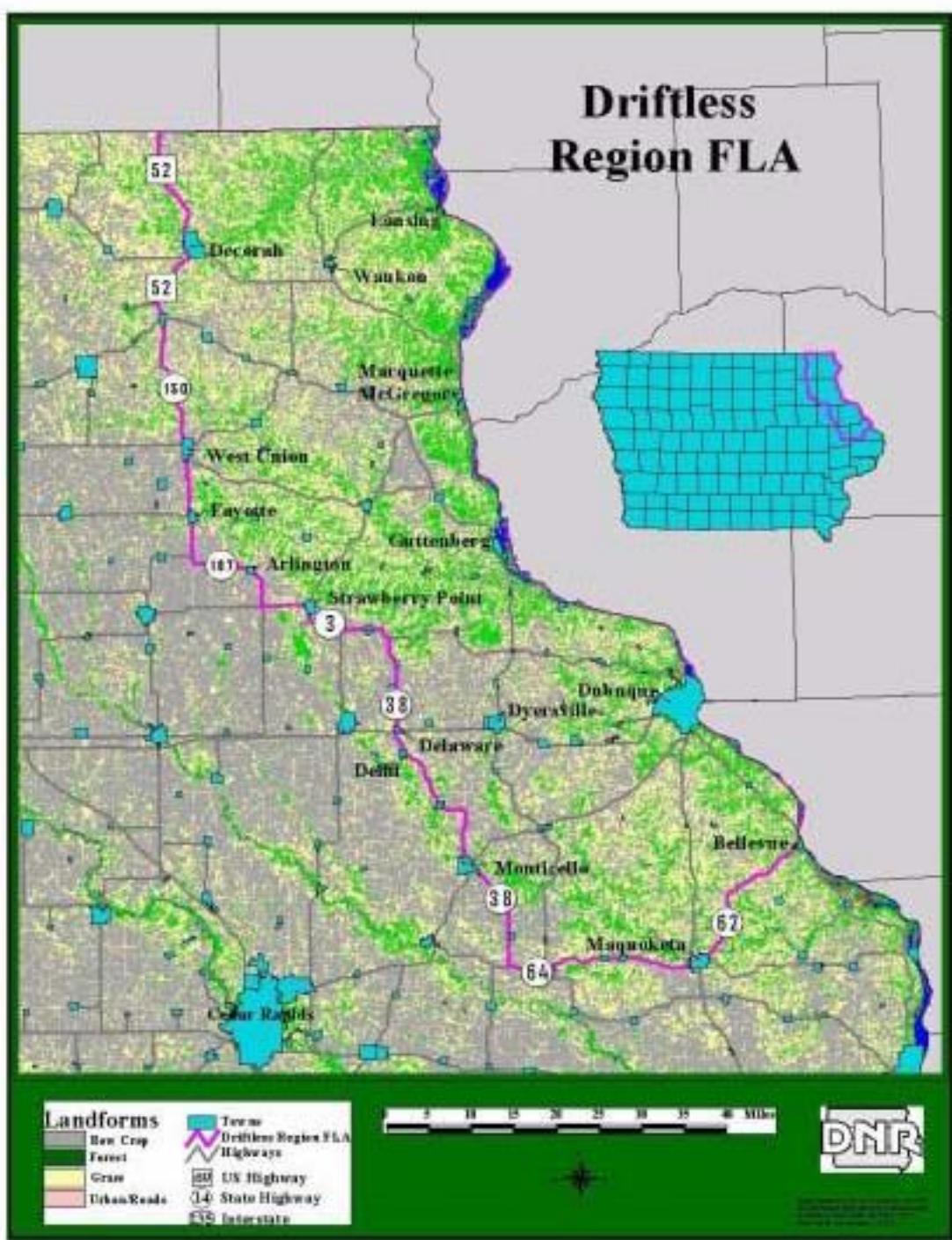
In partnership with the Iowa Natural Heritage Foundation, the DNR has determined that private forestlands in the Driftless Forest Legacy Area are some of the largest remaining forested parcels in the state. These private forests border many key public and permanently protected forest areas. Landowner demographics show an aging ownership with few heirs with interests in continuing farming. Development pressures for these scenic forests are increasing through the area; subdivision advertisements and higher forestland offers have been seen at land auctions. County records show increased absentee and out of state land ownership, as second and recreational homes are increasing throughout the area. This trend in demand for second homes/recreational lands is expected to continue given the close proximity of the Driftless Forest Legacy Area to the Metropolitan areas of Chicago (3 hours away) and Minneapolis-St. Paul (2 hours away). The Driftless Forest Legacy Area is suffering from increased problems of non-native invasive plants such as buckthorn and garlic mustard. The area is at the leading front of the Gypsy moth now established in the Madison, Wisconsin area.

Goals and Objectives of the Driftless Forest Legacy Area

Goal: To reduce forest fragmentation of private forests bordering or near federal, state, county or permanently protected forest holdings.

Objectives: to use conservation easements, purchase of other development rights, fee acquisition and forest stewardship planning to:

- Maintain contiguous forest resources,
- Protect boundaries and natural resource management opportunities on federal, state, county or permanently protected forests,
- Protect unique archeological, cultural and geological resources,
- Protect unique the habitats of flora and fauna resources,
- Provide opportunities for outdoor recreation,
- Protect scenic vistas and overlooks,
- Protect opportunities for sustainable traditional forest management on private lands to benefit economies of rural communities, and
- Reduce soil erosion to protect water quality.



State Designated Protected Water Areas

General Description

In the late 1970s the then Iowa Conservation Commission (today the Iowa DNR) spent considerable effort and time in developing a State Protected Water Areas program. State Designated Protected water Areas contain a high quality condition landscape that is unique in the state. Areas designated for Protected Waters are Middle Fork of the Raccoon River, the Boone River the Wapsipinicon River and Little Sioux River. Each of these Protected Water Areas contains critical forest cover that is threatened from surrounding land use conversion from commercial and expanded agricultural interests.

Description of Boundaries of State Protected Waterways Forest Legacy Area

The Middle Fork of the Raccoon River flows from the west central to central Iowa joining the Raccoon River just west of

the City of Des Moines. The Forest Legacy Area starts at the intersection of U.S. Highway 71 and U.S. Highway 30 in the City of Carroll, Iowa. It continues east along Highway 30 to the City of Scranton, heading south along State Highway 25. It then continues east along State Highway 141, heading south along State Highway 4. Then it heads east along State Highway 44 to the City of Dallas Center. It then heads south along U.S. Highway 169 to U.S. Highway 6 in the City of Adel. It continues along State Highway 6 to Interstate 80 West. It then goes west along Interstate 80, then west on State Highway 925 to the City of Adair. It then west along U.S. Highway 6, then heads north on U.S. Highway 71 to the City of Carroll.

The Boone River flows through a heavy agricultural area of North Central Iowa. The Forest Legacy Area of the Boone River Valley would start at intersection of State Highway 17 and State Highway 3. It runs east along State Highway 3, then heads south along U.S. Highway 69. It then runs west along U.S. Highway 20, then heads north along State Highway 17.

The Wapsipinicon River protected waterway area located in east central Iowa of this Forest Legacy Area begins at Intersection of U.S. Highway 61 and U.S. Highway 30 just west of the City of DeWitt, Iowa. It runs west along U.S. Highway 30 to the Cities of Mount Vernon/Lisbon. It then runs north along State Highway 1, then east along U.S. Highway 151 to the City of Anamosa. It then runs east along State Highway 38, then runs south/east along State Highway 136. It then turns south on U.S. Highway 61 to the intersection of U.S. Highway 30.

The Little Sioux River protected waterway area is located in extreme northwest Iowa. The Forest Legacy Area begins intersection of U.S. Highways 71 and 18 at the City of Spencer, Iowa. It heads east along Highway 18 to the City of Emmetsburg, heading south along State Highway 4. It then turns west on State Highway 10, heading south along U.S. Highway 71. It then turns west along State Highway 3 to the City of Cherokee, heading north on U.S. Highway 59 to the intersection with U.S. Highway 18 north of the City of Primghar. It then heads east along U.S. Highway 18 to the Intersection of U.S. Highway 71 in the City of Spencer, Iowa.

Description of the Important Environmental Values

The Middle Fork of the Raccoon River and the Boone River forests exists as upland hardwood forests on steep slopes and floodplain forests in a highly agricultural area of North and West Central Iowa. They provide critical fish and wildlife habitat in this limited forested area, helping to provide drinking water for several communities in their areas. They both contain rare and unique oak savanna remnants. The Wapsipinicon State Protected Waterway possesses steep slopes covered with upland and floodplain hardwood trees. The forestlands in the Wapsipinicon River State Protected Waterway provide drinking water supplies for all the communities in their watershed and are critical fish and wildlife habitat areas. Several unique and rare cultural and geologic features are found in the Limestone Bluffs of Wapsipinicon River valley. The Middle Raccoon River Protected Waters area is the source of drinking water for the Des Moines metro area (400,000 residents). The forests along the Middle Raccoon River are critical riparian habitat and a source of raw materials for the sawmill at Redfield, Iowa. The Little Sioux River forests are Bur oak savanna remnants along with bottomland hardwoods in the floodplains, with redcedar covered steep slopes. The Little Sioux River's forests is the only wooded habitat in the region. This state protected waterway supplies drinking water supplies for the City of Spencer, Iowa (25,000 residents).

State/Federal Managed Lands within the State Protected Waterways Forest Legacy Area

State and Federal managed lands within the Middle Raccoon State Protected Water portion of this Forest Legacy Area includes Springbrook State Recreation and Educational Center (920 acres) and Lake Panorama private recreation area. The Boone State Protected Water portion of this Forest Legacy Area includes no major state or federal managed lands. The Wapsipinicon State Protected Water portion of this Forest Legacy Area includes Wapsipinicon State Park (390 acres). The Little Sioux Protected Water portion of this Forest Legacy Area includes Wanata State Park (160 acres).

Current and Potential Conversion Pressures

The forests within this Forest Legacy Area are critical for water quality for both drinking water supplies and outdoor recreation. They have all been on constant pressure to conversion from agricultural clearing for crops and for unrestricted livestock grazing for beef and dairy production. The forests of the Wapsipinicon and the Middle Raccoon State Protected Water portions now facing residential and commercial land development due to their proximity to the

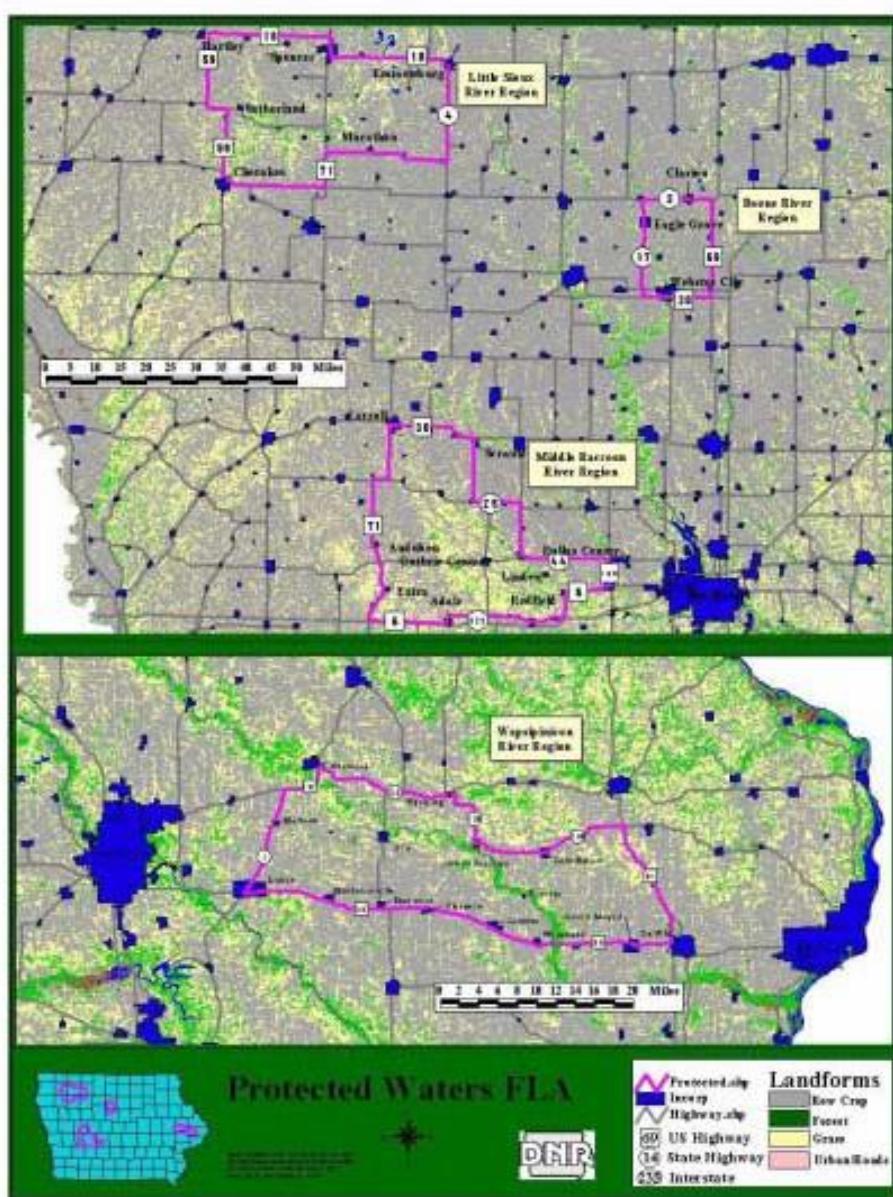
metro areas of Cedar Rapids and Des Moines respectfully. Interest in land development is especially keen around areas that border county and state parks areas.

Goals and Objectives of the State Protected Waterways Forest Legacy Area

Goal: To reduce fragmentation of private forests bordering or near federal, state, county or permanently protected forests.

Objectives: to use conservation easements, purchase of other development rights, fee acquisition and forest stewardship planning to:

- Maintain contiguous forest resources,
- Protect and expand riparian forests,
- Protect unique archeological, cultural and geologic resources,
- Provide critical fish and wildlife habitat,
- Provide opportunities for sustainable traditional forest management that will benefit the economies of rural communities, and
- Reduce soil erosion to protect drinking water supplies.



Southern Iowa Drift Plain

General Description

Southern Iowa forests are a unique resource that resembles the forests of the Ozarks of Missouri and Arkansas. Hardwood forests occupy steep and highly erodible slopes. These forests have been abused by past agricultural and livestock overuse. These forests offer opportunities for agroforestry development of non-traditional forest products, from nuts to mushrooms. Absentee land ownership is increasing and fragmentation has been noted in the area.

Description of Boundaries of Southern Iowa Drift Plain Forest Legacy Area

The Southern Iowa Drift Plain extends from southwestern Iowa northeast to the Des Moines metro area, south east along the Des Moines River to the Mississippi River to the Missouri State border. areas bordering the Mississippi River with its southern boundary being Missouri. It covers a large expense of the southern 1/3 of Iowa, and is an area in transition from marginal cropland to large animal feeding operations. The southwest corner of this Forest Legacy Area begins at the City of Braddyville at the Intersection of U.S. Highway 71 and the border with the State of Missouri. It runs north along Highway 71 to U.S. Highway 6, heading through the City of Des Moines. At U.S. Highway 69 it runs south to State Highway 163 to the City of Oskaloosa. At the City of Oskaloosa, it turns south along U.S. Highway 63, then east along State Highway 78 to the Community of Olds. Then it runs south along U.S. Highway 61 (also known as the Great River Road) bordering the Mississippi River to the City of Keokuk, Iowa. At the City of Keokuk, the Legacy Area turns west along the state border with Missouri.

State/Federal Managed Lands within the Southern Iowa Drift Plain Forest Legacy Area

Although this Forest Legacy Area forest ownership is largely controlled by private landowners, but does contain several important state forested public areas. These include: as Stephens State Forest (12,000 acres), Lake Ahquabi State Park (770 acres), Lake Darling State Park (1,387 acres), Lake of Three Fires State Park (1,155 acres), Nine Eagles State Park (1,119 acres), Lake Icaria County Recreation Area (1,945 acres), Green Valley State Recreation Area (990 acres), Bobwhite State Park (398 acres), Redhaw State Park (649 acres), Honey Creek State Recreation Area (828 acres), Lake Wapello State Park (1,150 acres), Sharon Bluffs State Park (144 acres), Geode State Park (1,641 acres) and the Rathbun Lake State Wildlife Area. Rathbun Lake is a major drinking water source for all of south-central Iowa and north central Missouri.

Description of Important Environmental Values

The forests of the Southern Iowa Drift Plain are upland forests similar to Ozark forests of Southern Missouri. They exist on steep slopes (>14%). These forests had been heavily grazed when cow-calf operations were economic until the 1980s farm crisis and the shift now towards feedlot operations. Forestland grazing still continues in the area, with estimates that 59% of the forests are grazed. The area forests provide abundant areas for game and non-game wildlife; it was here that the first successful restoration of wild turkey and white tailed deer was started. Golden and bald eagle migration along the Des Moines River makes heavy use of the forested areas. The forests provide significant areas for outdoor recreation for residents and visitors to the area; the forests are critical to a growing tourism trade. Water quality is a major issue within this Forest Legacy Area, from sedimentation and excessive nutrient issues. Forests and their protection can play an important roll in protecting water quality, especially as it relates to the Des Moines River and Rathbun Lake. The forests within this Forest Legacy Area offer opportunities for expansion of traditional and non-traditional forest products. Resource Conservation and Development Areas in Burlington, Centerville, Fairfield and Runnells, Iowa are expanding rural development through forestry efforts in finding markets for traditional and non-traditional forest products.

Current and Potential Conversion Pressures

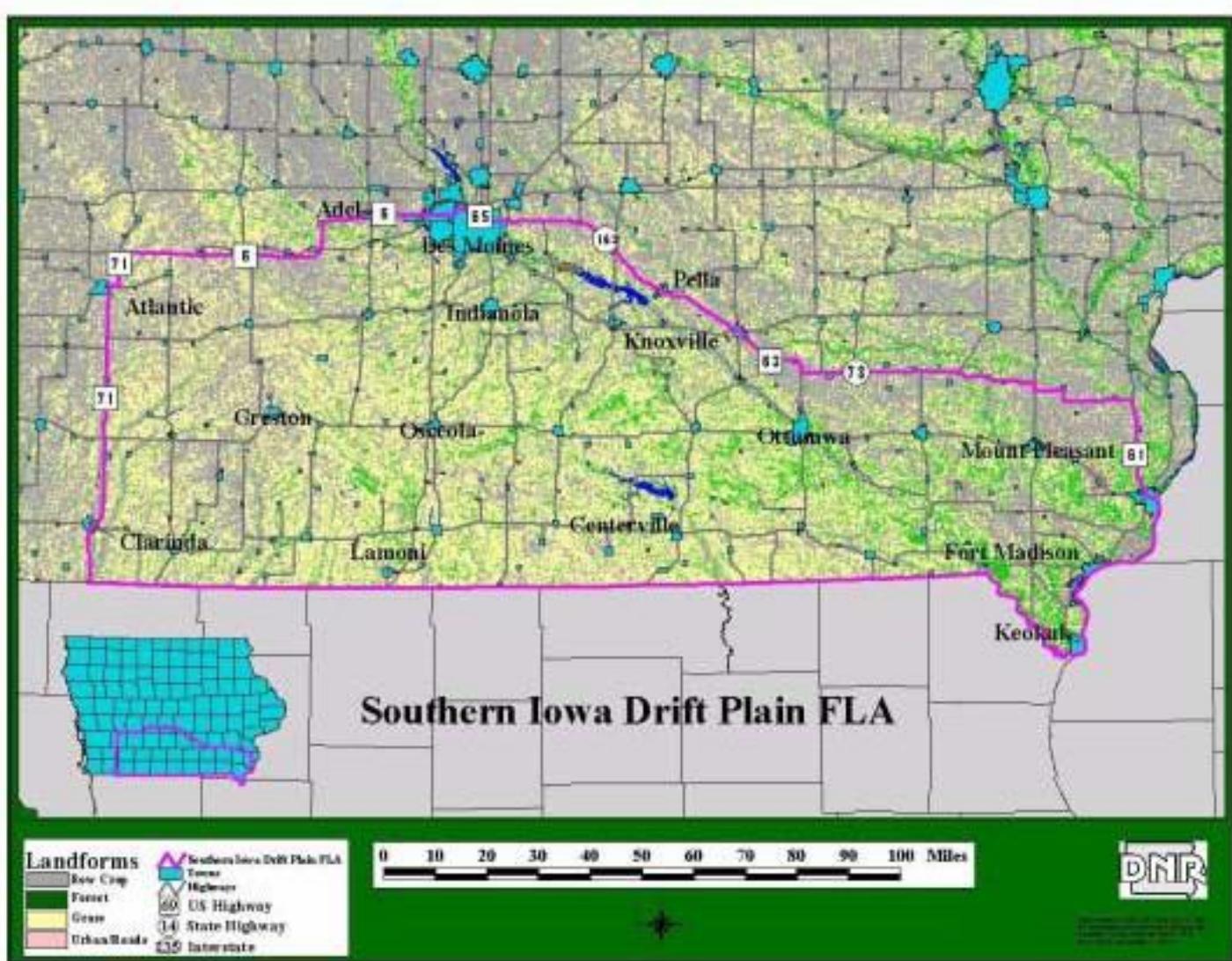
Pressures continue to convert forested areas into agricultural crop ground or livestock grazing, as the region is economically depressed. There is a general lack of awareness of the values of forestland to water quality enhancement, though efforts to restore riparian areas is increasing. The close proximity to the Des Moines metro area is increasing opportunities for large parcels to be subdivided into residential and hobby farm locations. Interest for private hunting preserves in southern Iowa according to recent state and Iowa Natural Heritage Foundation land purchases has significantly increased land values, increasing subdivision and forest fragmentation in the area. This trend is expected to continue, with increased absentee land ownership pushing forestland values even higher. Opportunities for increased forest stewardship efforts especially for improved wildlife habitat exist with many of these absentee landowners.

Goals and Objectives for the Southern Iowa Drift Plain Forest Legacy Area

Goal: To reduce forest fragmentation of private forests bordering or near federal, state, county or permanently protected forests.

Objectives: to use conservation easements, purchase of other development rights, fee acquisition and forest stewardship planning to:

- Maintain contiguous forest resources,
- Protect boundaries and natural resource management opportunities on federal, state, county and permanently protected forests,
- Provide critical fish and wildlife habitat,
- Enhance and expand riparian forest areas,
- Provide opportunities for outdoor recreation,
- Provide opportunities for sustainable traditional and non-traditional forest products to assist the economies of rural communities, and
- Reduce soil erosion and protect drinking water supplies.



Iowa Forest Legacy Landowner Application Package Will Contain (see Appendix A-1):

- Forest Legacy Program Application-Information Sheet
- Landowner Inspection Consent Agreement
- Forest Legacy Program Application Form (# of pages)
- Application Submission Checklist
- Map of Designated Forest Legacy Areas
- Iowa Forest Legacy Program Evaluation Criteria and Description

Iowa's Assessment of Need - Public Involvements

Public Participation Process and Draft timetable

The public participation process for Iowa's Forest Legacy Program Assessment of Need (AON) took place initially during the fall of 1999 when the Iowa Forest Stewardship Council was introduced to the concept of the Forest Legacy Program. The council voted to pursue development of the Assessment of Need by the Iowa DNR Forestry Bureau.

The next phase involved discussion with interested organizations, stewardship committee members and landowners over the state of Iowa at organization meetings and through informal/formal networks of forestry and private landowner organizations. A Forest Legacy Sub Committee was established in August of 2000 to help in the development and review of the initial draft AON. This subcommittee determined the proposed Forest Legacy Areas. The second draft was developed in May 2001 being brought in front of the entire Forest Stewardship Committee for comment and approval on May 8, 2001. Comments were received on the second draft, and are included in this AON from Forest Stewardship Committee members. The entire stewardship committee voted to support the 7 proposed Forest Legacy Areas.

Additional and revisions proposed by the Stewardship Committee were addressed in the Third Draft of the AON that was released for public comment on August 14, 2001. During the Iowa Natural Resources Commission public meeting of August 2001, State Forester Mike Brandrup gave an informational review of the Draft AON, and asked for any comments to be made by September 10, 2001. The Draft AON and news release was placed on the Department of Natural Resources- Forestry Bureau website <https://www.iowadnr.gov/places-go/state-forests> on August 14, 2001. A general statewide news release was put out by the Department of Natural Resources on that same day letting people know about the AON, and that a public hearing was set for September 10, 2001 at the State Forest Nursery in Ames. The public hearing was held on September 10th with 7 participants (see attendance list). Additional public comments were received and addressed through a question and answer period. Additional email and telephone conversations concerning the AON were received and addressed right up to the final preparation of the AON on November 30th.

A letter to the Chair of each County Supervisor where a Forest Legacy Area is proposed was mailed on November 29, 2001. In addition, letters to members of Iowa's delegation to the House of Representatives and Senate were mailed on November 29, 2001. The final AON was completed and sent to the U.S. Department of Agriculture Secretary for her approval on December 3, 2001.

Below is the timetable for production of this Forest Legacy Assessment of Need (AON) for the State of Iowa.

November 1999 - State Forest Stewardship Committee is introduced to Forest Legacy concept and votes to pursue Assessment of Need development.

March 2000 - State of Iowa applies to federal matching funds to develop AON

May 2000 - Research on other states' Forest Legacy Plan begins; an AON outline is constructed; list of organizations and people to talk with about the program is developed and implemented.

June 2000 - Preparation of the AON Draft document begins following discussions with members of the forest stewardship committee and state foresters; focus of Forest Legacy Plan and possible Forest Legacy Areas are identified as information is gathered for the AON. Funding for preparation of the AON is received by DNR from USDA Forest Service-State/Private Forestry.

August 2000 - AON drafted and sent to a Forest Legacy subcommittee for review and comment; a meeting is held with the subcommittee where comments are received, the AON is sent back to the DNR for further development and revisions.

May 2001 - The second draft of the Forest Legacy Plan is developed and presented for comment to the State Forest Stewardship committee. Comments are received from State Stewardship Committee members (enclosed).

July 2001 - A third draft is developed and sent out to the Forest Legacy subcommittee for further review

August 2001 - Efforts to receive additional public through open meetings is held with the Iowa Woodland Owners Association, Iowa Tree Farm Committee, Northeast Iowa Forest Advisory Committee and the Southeast Forest Advisory Committee. The document is put on the DNR's web page and news releases requesting public input are sent out statewide for a 21-day review and comment period. Letters sent to the Chair of County Supervisors where FLA will occur.

September 2001 - Public hearing was held on September 10th from 6:30-8 pm at the State Forest Nursery in Ames. A formal presentation was given to the audience and comments were taken and addressed during the meeting. Additional comments were received and addressed via email and phone calls. Governor Vilsack approves the plan and designates the Iowa DNR Forestry Bureau as the lead agency in program implementation (see attached letter).

October 2001 - The Iowa Natural Heritage Foundation Executive Director support the AON, and helps to coordinate a partnership meeting with the DNR to begin identification of potential legacy tracts around Yellow River State Forest.

November 2001 - Revisions are then made to draft AON; additions and corrections are made to the final AON; lists of involved parties is added, as well as names of organizations involved in the implementation of the plan. The Final AON sent to U.S. Secretary of Agriculture for approval.

References

- Cooper, Tom C. (1982). *Iowa's Natural Heritage*. Iowa Natural Heritage Foundation and the Iowa Academy of Science.
- Delaware Department of Agriculture (2000). Delaware Forest Legacy Program: Assessment of Need (Final Report).
- Indiana Department of Natural Resources. (1998). Indiana Forest Legacy Program: Assessment of Need (Final Report).
- Iowa Department of Natural Resources. (1996). State Comprehensive Outdoor Recreation Plan.
- Iowa Department of Natural Resources. (1993). 1993 Service Survey Results.
- Iowa Department of Natural Resources. (1996). A Vision for Iowa's Forests: 1996-2001 Forest Resources Plan of Action.
- Iowa Department of Natural Resources. (1996). Famous and Historical Trees of Iowa.
- Iowa Department of Natural Resources. (2000). Portrait of the Land.
- Iowa Department of Natural Resources. (2001) A Vision for Iowa's Forests and Prairies: 2001-2006, Forest and Prairies Plan of Action.
- Krambeer, Curt. (1994). Survey of Iowa Wood Businesses by the Iowa Wood Industries Association.
- Kurtz, Carl. (1996). Iowa's Wild Places: An Exploration with Carl Kurtz. Iowa State University Press, Ames.
- Leatherberry, Earl C. Roussopoulos, Sue M. and Spencer, John S. Jr. (1990). An Analysis of Iowa's Forest Resources. USDA Forest Service Resource Bulletin NC-142.
- Minnesota Department of Natural Resources. (1999). Minnesota Forest Legacy Program: Assessment of Need (Final Report).
- Natural Resources Conservation Services. (1995). A Look at the NRI: a comparison of the Iowa NRI from 1982 to 1992.
- Prior, Jean C. (1991). Landforms of Iowa. University of Iowa Press, Iowa City, Iowa.
- Rhode Island Department of Natural Resources. (1999). Forest Legacy Needs Assessment.
- USDA Forest Service Forest Inventory and Analysis, 1999. Draft report on the Annualized Forest Inventory of Iowa, 1999.
- van der Linden, Peter J. and Farrar, Donald. (1993.) Forest and Shade Trees of Iowa. Second Edition. Iowa State University Press, Ames.
- Wisconsin Department of Natural Resources, (2000). Wisconsin's Forest Legacy Program: Forest Assessment of Need (AON).

Appendix A-1: **Draft Forest Legacy Application Package**

Forest Legacy Tracts

Forest Legacy Tracts refer to the actual property being considered for acquisition or for conservation easements. Only lands within a designated Forest Legacy Area may be considered. A priority system will be set up and approved by the Iowa Forest Stewardship Committee to prioritize applications. The following are the criteria to be used for evaluating individual tracts offered for inclusion into the Forest Legacy Program in Iowa. Actual Points may be applied for each criteria by the Forest Stewardship Committee.

Criteria for Selecting Forest Legacy Tracts

The following criteria will be applied to tracts being considered for acquisition or for conservation easements. The more of the criteria that applies to a tract, the higher it will rank in priority.

- Tracts that contain environmentally important forests that contain one or more of the following:
 - Scenic or significant viewshed values such as overlooks, vistas or is visible from main highways,
 - Recreation opportunities for non-motorized public access such as hunting, fishing, hiking and nature enjoyment,
 - Riparian areas that are adjacent to major waterways, drinking water supplies and public lakes,
 - Unique and or contiguous fish and wildlife habitat,
 - Known threatened and or endangered plant and animal species dependent on forest habitat,
 - Known unique cultural or geological resources that could be lost or damaged,
 - Opportunities for the continuation of traditional forest uses, such as forest management, timber harvesting and other commodity use that benefits economic values in neighboring communities,
 - Borders or enhances the natural areas of existing federal, state, or local government-owned or permanently protected forests owned or controlled by non-profit organizations.
 - Protects and enhances water quality and watershed values of a public drinking water supply,
 - Contains unique or isolated tree species and forest stand conditions (old growth or savanna),
 - Key to minimizing local forest fragmentation and allows opportunities for continuation of traditional forest management and use.
- Tracts that are deemed eminently threatened or at risk of being converted to non-forest use.
- Located within counties without other protection resources and opportunities (no zoning).
- Forests covered by an up to date and DNR approved Forest Stewardship Plan.
- Minimum size of five acres of forest coverage.

Application and Ranking of Requests

The following application packet will be distributed to private forest landowners interested in enrolling in the Forest Legacy Program. Landowners will be expected to complete the application with the assistance of the local DNR Forester or other knowledgeable professionals to ensure that the information is complete and correct. Applications will be reviewed by the Iowa DNR Forestry Bureau and go the Forest Stewardship Committee for review and prioritization.

Points will be awarded to the applications for the number of the above criteria met. Actual point amounts for each criterion will be determined by the Forest Stewardship Committee and approved by the Iowa State Forester.

Site visits and inspections of the actual property will be necessary for properties being considered, an inspection consent agreement will be completed at the time of application.

Applicants will be notified of how their application was scored once the Forest Stewardship Committee and the State Forester have completed their assessment and recommendations.

Landowner Application Package for the Iowa Forest Legacy Program

This application can be found on [Forest Legacy](#) page of the Iowa DNR's website.