TO THE SECRETARY:

FROM: John N. Keener

SUBJECT: MASTER PLANNING - Approval of conceptual master plan for the Pershing Wildlife Area, Taylor County.

1. To be presented at ___ August ___ Board meeting by ___ John Keener ___.

2. Appearances requested by the public: None.

3. Reference materials to be used:
   Memorandum dated August 3, 1979 from John N. Keener to Anthony S. Earl. Pershing Wildlife Area Master Plan (Concept Element).

4. Summary:
   The Concept Element of the Master Plan has been developed for the Pershing Wildlife Area. The Department proposes to manage the property for the production of waterfowl and sharptailed grouse, to provide public hunting and trapping and to accommodate other limited, compatible, nature-oriented uses.

5. Recommendation: That the Natural Resources Board approve the Concept Element of the Master Plan with a land acquisition goal of 7,650 acres.

APPROVED:

C. D. Sesack, Administrator 8-8-79

N. C. Damon, Deputy Secretary 8-9-79

Signed:

John N. Keener, Director
Bureau of Wildlife Management

cc: Judy Scullion - 14
Ron Nicotera - 14
Art Doll - 9
Jim Huntoon - 7
John Keener - 6
Dave Gjestson - 6
Pete Jensen - 2
Dave Jacobson - Spooner

REAL ESTATE
Date:       August 3, 1979                      File Ref:    2300
To:         Anthony S. Earl
From:       John M. Keener

Subject:    Master Plan for the Pershing Wildlife Area - Taylor County

The final Concept Element of the subject Plan is presented for your approval. Objectives proposed for the 7,650-acre property include management for sharptailed grouse, waterfowl production, public hunting and trapping, timber management and limited nonhunting use. The Plan has been subjected to 45-day review by the appropriate Department functions, advisory groups and other resource agencies.

Comments received have been reviewed by the Bureau of Wildlife Management and the Northwest District. Agreement was reached on the treatment of comments, the majority of which were incorporated into the final draft. No public controversy has been brought to our attention during the review process.

DLG:mg
cc:         Judy Scullion - 14
            Ron Nicotera - 14
            Art Doll - 9
            Jim Huntoon - 7
            John Keener - 6
            Dave Gjestson - 6
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BACKGROUND INFORMATION

The Pershing Wildlife Area is located in west-central Taylor County, four miles north of the Village of Gilman. The present ownership comprises 7017 acres and is split into a north and south unit. A strip of private land 1-1/2 - 2 miles in width, separates the two units (Page i). State Highway 73 passes just to the east of the project. Its heritage originates with the logging, fire and land clearing era of northern Wisconsin.

In 1953, the Pershing Wildlife Area was established as a public hunting ground. A lease was negotiated on 2,520 acres of land owned by Taylor County. In 1960, the wildlife area was formally established and purchase of additional land was authorized. It received a great boost forward in April of 1960 when Taylor County donated 3,400 acres of land to the State.

Pershing is being managed for sharptailed grouse and waterfowl. A total of 12 shallow impoundments, flooding 640 acres, have been constructed. A total of 106 potholes have been dug. This habitat favors breeding and production of waterfowl. Migrant ducks and geese also use the area. Sharptail management is predicated upon the use of prescribed fire. A total of 18.5 miles of permanent firebreak have been built with incorporation into access road and dike construction.

Approximately 2,600 acres of brushy or partially forested lands have been treated and managed with prescribed burning. Burning is also compatible with waterfowl management by creating improved, quality nesting habitat. A limited food patch and sharecropping program has been established. A closed area is utilized for attracting geese. The objective is to build up a use tradition for migrant birds with a limited goal of 500 to 1,000 geese.

Furbearers are common and muskrat and otter populations have increased with construction of the flowages. Utilization of these two species along with beaver and mink, is quite high. Hunting for deer, ruffed grouse and woodcock is fair to good in the scattered brush edges and pockets of forested cover.

The wildlife area is relatively new and the response to management has been favorable. With improving habitat quality, wildlife production should improve further.

Goal:

To manage intensively for the production of waterfowl and sharptailed grouse, to provide public hunting and trapping and accommodate other limited, compatible, nature-oriented uses.

Objectives:

1. Sustain a viable population of sharptailed grouse with a minimum cyclic low of 75 - 100 birds.
2. Maintain waterfowl production at the rate of one duckling per acre of permanent water (600 acres).

3. Provide 10,000 participant days of quality hunting annually:
   a. Upland game birds - 4,000
   b. Waterfowl - 3,300
   c. Deer - 700
   d. Upland game mammals - 2,000

4. Sustain an annual furbearer harvest by providing a maximum of 1,200 days of trapping:
   a. Muskrat-mink - 600 days
   b. Beaver-otter - 600 days


Additional benefits:

1. Accommodate 3,600 participant days/year of extensive, non-hunting or trapping outdoor recreation--primarily wildlife observation and nature hiking.

2. Timber management and harvest will occur on part of the area where the emphasis is directed at maintaining aspen and providing improved distribution of age classes to meet wildlife habitat needs.

3. Contribute toward the habitat of migratory endangered and threatened species.

Alternatives considered but not adopted:

1. More non-hunting user activities - rejected because of National forest campground on federal flowage 5-6 miles away. Heavy soils limit use of horses and there are many other local opportunities for snowmobiling.

2. Manage more intensively for timber production - rejected because only 35-40% of the wildlife area is forested and wildlife habitat needs have top priority. Actually, some additional timbered tracts will have to be cleared to meet waterfowl and sharptail production objectives. There are many acres of land within 15-20 miles where timber is the primary management objective - Chequamegon National Forest plus Chippewa and Price County Forests. Site values for aspen, the primary forest type, are low with poor quality stands.

3. Restore prairie chickens, a threatened species - rejected because the area of suitable habitat on Pershing is too small. Marginal prairie chicken habitat surrounds the property and there are potential adverse interactions with the existing sharptail population.
WILDLIFE AREA OPERATION POLICIES

The following are policies which are in effect to promote quality use and/or management on the area:

1. Outboard motor use prohibited on all waters.
2. Access limited by controlled use of walking trails and firebreaks; i.e. trails closed to all use during spring nesting season, but open to nonconsumptive wildlife use during summer, fall and winter and hunting during open seasons.
3. Establish burning rotation pattern by compartment.
4. Utilize forest crops for fiber production when consistent with property goals.

RESOURCE CAPABILITY

Soils and Geology

Soil types present on the area fall mainly within two associations: the Freer-Alemna-Auburndale silt loams and various kinds of peat soils. Soils in the first group are found on level to gently sloping glacial till plains and developed on a blanket of acid loess and the underlying acid, compact sandy loam glacial till. They are somewhat poorly drained and this trait tends to limit their capabilities. Surface stones are common on these soils and frost heaving continuously brings up new ones. The wet peat soils are acid to very acid, hard to drain and present a severe frost hazard.

1. Capabilities for Forestry:

Freer-Alemna-Auburndale - Soils in this association have wetness problems. They produce moderate yields and are occupied by less desirable species such as elm, black ash and soft maple.

Peat Soils - have severe limitations. Tree species limited and very slow growing.

2. Capabilities for Agriculture:

Freer-Alemna-Auburndale - Good. However, surface drainage is needed to remove excess water and control erosion. These soils respond well to lime and fertilizer. Those higher drained sites are used for share cropping, food patches and establishment of dense nesting cover for waterfowl.

High water table contributes to shallow marshes, flowage and pothole development. Associated problems have caused abandonment of marginal farms and contributed to quality wildlife habitat.

Peat Soils - Poor, but under drainage and good management, some make fair pasture land.

3. Capabilities for Other Uses:

Soil types on the wildlife area also create land use problems. They severely limit potential for campground and/or housing development.
These soils will not accept sewage effluent under normal conditions and require engineering modifications such as mound systems. Wet soils result in problems with vehicular traffic and horses. Roads, trails and dikes are easily damaged. Structures on the land - culverts, water control tubes, posts and gates are subject to frost heaving. Added precautions such as mulching, traffic control and designated use areas, are necessary.

Peat soil drainage affects water quality (pH, color) in the flowages. Agricultural activity in the upper watersheds tends to offset this affect somewhat by runoff from fertilized fields.

**Wildlife (species present and capable of management):**

A large variety of game and non-game birds and animals use the area. A total of 122 different species of birds have been observed on the wildlife area either as breeders or migrants. Records show at least 22 species of mammals present. There are no known endangered or threatened species utilizing the property.

Management emphasis has been directed towards improving sharptailed grouse and waterfowl habitat. Furbearers are a valuable by-product associated with flowages, potholes, streams and marsh edges. Primary management land-use activities limit potential for management of forest wildlife species.

Management capabilities include:

1. Sharptailed grouse - private land use practices in and around the project area complement management efforts for this species. The mixture of farm fields and disturbed habitats resulting from planned management activities provide the "open" and "edge" habitat favored by sharptail grouse (current population level is approximately 75-100 birds).

2. Waterfowl - breeding species listed in descending order of importance: Mallard, blue-winged teal, wood duck, green-winged teal, ringnecked duck, black duck and hooded merganser (Approximately 600 ducks and produced annually).

   a. Migrant geese (Canadas, snow and blue geese) - A closed area and limited green pasture has been set up to provide use opportunities for these birds.

   b. Resident geese - This past summer (1979) 30 geese were transferred from Crex Meadows in hopes of providing both a breeding flock on and around Pershing as well as acting as a decoy flock for fall migrants. This procedure is planned to be continued for the next 2 years and will then be evaluated. This procedure replaces past practices of holding a penned decoy flock during the months of September and October.

   c. Migrant ducks - The species listed above are also migrants in addition to scaup, bufflehead and redheads.
3. Forest game - Forest stands of maturing trees provide wooded habitats and "edge" attractive to ruffed grouse, deer and snowshoe hare. Woodcock use the area. As clearing of the forest compartments continues, potential for management of ruffed grouse and deer will decline. A balance will be obtained consistent with property goals and objectives.

4. Furbearers - Flowage and pothole construction has provided permanent water improving the habitat for muskrat, otter and to some extent, mink. Populations have increased. Beaver are common but their populations are decreasing as remaining stands of aspen are converted to open habitat types.

5. Miscellaneous - An increasing demand for fox, raccoon and coyote has increased trapping as well as hunting of the species. It is an added dimension to use of the area.

6. Non-game values - A large variety of species is present. Conversion to the open grass-brush succession type has added habitat diversity. Limited observations of the sandhill crane, yellowhead blackbird and the Franklin's ground squirrel attest to this. The marsh hawk or harrier has increased along with species such as the blue heron and American bittern. As the environment continues to change, documentation of additional species will occur.

Two blinds have been established for observing Spring sharptail dancing activities. This use, along with other bird watching activities, have been increasing on Pershing.

Fish:

Fish species known to be present within the project boundaries either on a year-round or occasional basis, include northern pike, bullhead, common shiner and creek chub. Survey data on fishery resources within the area is quite limited. Due to the fluctuating water levels on the flowages and intermittent nature of the streams, management potential for nearly any type of fishery is very limited.

Flow basin structure, water depth and water exchange account for periodic, winter oxygen depletions in all the ponds. Use of the remaining minnow populations by bait dealers provides the only fishery value of any consequence.

Additional survey work is needed to complete any species composition list. Consideration of possible endangered or threatened species will be given as the need arises.

Vegetative Cover (Table 1):

The general cover type is 65% upland and 35% lowland. Of the upland acreage, 46% is classified as "open" (field, grassland, upland brush). The remainder is wooded, predominantly aspen. Lowland types include 640 acres (26%) of permanent water. The remainder is a combination of lowland brush, sedge and black spruce-tamarack bog.
Management plans provide for converting approximately 1,045 acres of aspen to upland brush and grass. This will be accomplished by commercial cutting (if possible), treatment of residual stems where necessary, and then burning or use of some other appropriate land management technique to affect the change.

A total of 61% of the upland acreage will then be in the "open" classification, predominantly upland brush. Distribution of these "open" types with existing wooded cover will provide productive cover combinations. It will complement the interspersion of farm fields and edge provided by private ownership - essentially the active farms. The dual contribution will provide excellent sharptailed grouse habitat.

The large acreage of "open" types will also provide improved waterfowl nesting habitat. This is presently the most limiting factor in management of waterfowl on the wildlife area.

An evaluation of cover types follows. It attempts to highlight priority values and is not intended as a total, in depth list.

1. Water:

   Permanent water flowages, potholes and seasonally flooded wetlands all contribute breeding habitat, food and cover for waterfowl and furbearers and associated aquatic game and non-game wildlife. The harvesting of minnows for fishing bait and trapping of turtles demonstrates additional benefits. Water associated with wetland flora represents a very dynamic wildlife community.

2. Field:

   Most open fields exist as residual evidence of past farming attempts. This type serves many uses depending upon location. Fields provide opportunities for sharecropping, food patches, establishment of dense nesting cover for waterfowl, sharptail dancing grounds, green pasture for geese and they contribute to the "open" aspect of the environment and appeal to the aesthetic senses.

3. Grass:

   Grasslands provide opportunities for waterfowl nesting habitat, sharptail dancing grounds, conversion potential to dense nesting cover, food patches, and regulated cattle grazing. It contributes to sharptail "open" requirements. Woodcock singing grounds are common.

4. Upland Brush:

   Upland brush is an essential component providing for the "open" requirements of sharptail habitat. It's used as nesting and brood habitat by sharptails, by waterfowl for nesting, and provides woodcock brood habitat. This edge situation provides a multitude of habitats for a large variety of wildlife. Portions of this habitat type could provide pasture for young stock (cattle) where it does not conflict with wildlife uses; this is an effective technique for managing brush.
5. Aspen:

Distribution of both type and age classes has value to many species of wildlife. Younger age classes serve as brood habitat for sharptail plus provide cover during hurting seasons. It serves the seasonal needs of ruffed grouse and woodcock as well.

Mature stands provide a winter food source (buds) for both sharptail and ruffed grouse. It's the most favorable type for all forest game species. The economic returns from pulpwood harvest are considered here as well. Approximately 1/4 of the project can be forested. The aspen type will provide the bulk of this woody cover.

6. Northern Swamp Hardwoods:

There is little direct value of swamp/hardwoods relative to the primary management direction on the area. Mass production is limited. Mature hardwoods provide a niche for such species as raccoon, a few gray squirrels, several non-game species and an occasional cavity for wood duck nesting sites. Minimal acreage (5%) along with items noted, limits its value to management, except that this is an important wintering area for nongame birds, most of which are cavity nesters. It provides limited hardwood silvicultural opportunities.

7. Lowland Brush, Sedge:

These types are valuable as wetlands and provide potential flowage and pothole development sites. They contribute to the "edge" values and the open aspects of the environment. Specific wildlife communities are attracted to these sites and they are productive of both game and non-game species. These habitat types add a positive element of diversity to the landscape. These sites also serve as water storage reservoirs and potential beaver flowages. Most furbearer species are associated with these sites.

8. Black Spruce - Tamarack:

These types add diversity, some edge and open character to the landscape. They provide some winter cover and roosting opportunities for a variety of wildlife.

Water Resources (Table 2 and Figure 1):

There are twelve impoundments constructed within the property area. They comprise a surface water area of approximately 640 acres during normal water levels. Maximum fill potential of the ponds is near 716 acres. The flowages range in maximum depth from four to eight feet with substantial areas in all the flowages being less than three feet. Major aquatic plant species are elodea, coontail, cabomba and cattail.

The impounded water is generally dark stained in color reflecting the peat soil drainage in the area. The pH values range from 5.8 to 7.2 and average 6.4. Methyl purple alkalinity ranged from 7 to 57 ppm with an average of 32 ppm. The water is therefore slightly acid and soft, indicating its relative infertility.
There have been 106 potholes constructed in the area up to 1975. Water chemistries have been documented on twelve of these and reveal an average pH of 6.7 and an average MPA of 31 ppm. The 80 potholes constructed up to 1974 average .07 acres in size (about 50' x 60').

The Pershing Wildlife Area lies in the Chippewa River watershed and all drainage is in a westerly direction. The principal drainage systems, Shoulder Creek and the Fisher River, flow through only a small portion of the area. Seven of the 12 ponds drain into the Fisher River, three into Shoulder Creek and two drain south into Elder Creek.

The Fisher River is an intermittent hard water stream with light brown water. It drains directly into the Chippewa River. Its fishery is composed mainly of minnow species with an occasional northern pike during periods of high runoff. Management obstacles include fluctuating water levels, warm water, cattle grazing and bank erosion. The estimated normal flow is about 0.1 CFS with a gradient of 17 feet per mile.

Shoulder Creek drains into the Jump River, a warmwater stream, which empties into Holcombe Flowage, an impoundment on the Chippewa River. It supports a fishery of minnows only, reflecting its intermittent flow. Estimated normal flow is 0.2 CFS with a gradient of 19 feet per mile.

**Historical and Archaeological Notation:**

A check with the Taylor County Historical Society shows nothing documented. The State Historical Society, Historic Preservation Division, 816 State Street, Madison, will be contacted in advance of any development affecting major resource types.

**Land Control:**

The present ownership totals 7,016.53 acres. A flowage easement affects an additional 90 acres of land (SW 1/4, 19-32N-3W). An agreement covering firebreak construction and prescribed burning affects 40 acres (SW SE, 22-32N-4W). Two share crop agreements are active on 42 acres and one pasture rental agreement is in force on 40 acres. Three public road easements to the Townships (1 each) of Pershing, McKinley and Cleveland, plus one access easement to a private landowner are active.

Taylor County retains the timber rights and sale administration responsibilities on lands donated to DNR; a specific agreement covers this restriction. Food patches (green pasture, corn, buckwheat) totaling 32 acres are incorporated into the management program to provide fall waterfowl use areas.

With the exception of seven property descriptions, the bulk of private ownership within the boundary contains active farms. The farming activity complements the sharptail program. One forested tract containing forty acres and located in the northwest corner of the wildlife area is proposed to be added to the property boundary. This parcel is essential for proper management of a "closed area" located in this vicinity as well as adding important protection from private development which would detract from wildlife area objectives.
A 545-acre closed area is established on the north unit. The closed area along with water and food manipulation is used to attract migrant geese as well as other migratory birds. The closed area provides important resting opportunities for migratory game birds and improves hunting of those species in the vicinity of the closed area.

Two observation blinds have been established for use by the public during the Spring sharptail dancing activities. In addition, an observation area overlooking several flowages has been created.

Gates are used to control access on most trails, dikes and firebreaks. A snowmobile trail has been defined. This trail will be included in the Taylor County plan under special use agreement; it will be constructed and maintained by the county.

The majority of the wildlife area is open to public use - primarily hunting and trapping. Wildlife observation and sight-seeing activity have been increasing.

Current Use:
Except for trapping pressure the project is not considered heavily used. Economic demands for wild fur along with trapping regulation zone lines, have accelerated use of this resource. This may be a temporary situation, dependent upon fur markets. Car counts provide the primary public use documentation and are supplemented by field observations by department personnel.

The primary use activities include hunting for waterfowl, sharptail and ruffed grouse, deer, woodcock, snowshoe hare and predators plus trapping for muskrat, beaver, mink, otter, raccoon, red fox and coyote. Bird watching (primarily sharptail during spring breeding period), snowmobiling, horseback riding, minnow trapping, and hiking are other recreational activities occurring on the area.

Development activities to support public use will be primarily limited to parking facilities which will serve to regulate existing use. Opportunities for day use and overnight camping and family oriented recreation are provided nearby. The U.S. Forest Service and private campground developments within 4 - 5 miles of the wildlife area accommodate these uses. The availability of these facilities alleviate the demands on Pershing.

Documented car count data on peak use days show: 28-30 cars on opening day of deer gun season, 25 cars opening day of waterfowl season, 20-22 cars opening day of trapping (muskrat and mink) season and 16 cars on opening day of upland game season. There is some overlap with concurrent season dates. Upland game and waterfowl hunting are the primary and most sustained activities of area users. Trapper use has increased in the past three years.

Non-hunting uses are increasing. Further attention will be given this matter in the future by using car counts. The highest count obtained through 1978 was 8 cars/day. Peak use has occurred during the spring migration period.
Land Use Potential:

The use class for all the property lands is "RD2" (Wildlife Management area) except for the administrative site where the storage garage is located in the south unit just west of the Witt Flowage.

RESOURCE MANAGEMENT PROBLEMS

1. Private Development Encroachment:

   The potential for private development is very limited due to existing land control and intensive agriculture on suitable lands. Private development of small impoundments could present a conflict. Many streams have intermittent water flow. Any developments above our existing flowages could affect water levels on the project.

2. Water Quality:

   Water quality presents some problems. Although the flowages appear rich in aquatic vegetation, the production of those plants preferred by waterfowl for food is limited. Emergent aquatics are somewhat lacking, which affects cover values. This is partially offset by shallow impoundments and manipulation of water levels. Drawing down and seeding flowage basins with millet helps compensate for a lack of natural food. In some instances, the low base flow from intermittent streams reduces water level manipulation potential.

   Water quality indirectly impacts waterfowl harvest potential. It limits production of aquatic food species which, in turn could affect numbers of waterfowl using the area during the fall hunting season. This is one of the limitations present when working with less than ideal water quality. Intensive management efforts (drawdown and water level manipulation plus direct seeding of food species) will help improve the situation.

3. Public Overuse:

   The quality of trapping has deteriorated over the past two years. It has been caused by a combination of economic demand for furs and season zone lines. Markets (fur prices) are the most significant factor in establishing the level of trapping interest. Should fur prices drop, it's likely the problem would disappear. Restructuring season zone lines is another alternative which will be explored in the future.

   Indiscriminate snowmobiling and horseback riding have caused problems. Snowmobiles compact snow and drive down frost which heaves culverts during the spring break-up period. Horses cut into soil during wet periods and produce erosion control problems.

   Limited problems (cutting ruts during wet periods) have occurred because of the use of trails and firebreaks by vehicular travel. Establishment of an approved snowmobile trail, incorporated into the county trail system, will alleviate most of the problem. The issue of the horses will be dealt with on a local level.
4. **Private In-holdings:**

   In general, private lands within the property boundary have not been a significant problem. Intensive agriculture on private in-holdings complements our management objectives - especially for sharptail grouse. Activities must be planned with recognition of private lands in mind.

   The Wildlife area has experienced some problems with free ranging cattle. However, controlled grazing as a management tool is being considered. This could alleviate the problem and provide habitat value as well.

5. **Law Enforcement Issues:**

   Attitudes of local citizens are not the most exemplary towards game laws and restricted use controls. This is true relative to petty property destruction (shooting and breaking signs, not respecting signed cables and fences, structure covers and other permanent fixtures).

   Incidents involving equipment vandalism and storage garage vandalism have occurred. Additional patrolling and enforcement are mandatory. The presence of a local warden (Thorp station) has had some positive impact relative to hunting activities.

6. **Fire Control:**

   Area farmers commonly use fire on their lands, usually through the burning permit route. It is a tool used in intensive management on the project. Several attempts have been made by people to burn department lands. This action does little good and interrupts scheduled burning rotation.

7. **Other:**

   Additional dollars are needed if the department is to accelerate the management program. Wildlife ORAP monies, P-R budgets and local Conservation Aids funding are the primary sources which need bolstering.

**LONG-RANGE RESOURCES, RECREATION NEEDS AND JUSTIFICATIONS**

The entire property is classified as a Wildlife Management Area. Present use is below capability with the exception of trapping (as discussed) and perhaps opening weekend of gun deer season. The latter use is currently not excessive. The wildlife area appeal and location as it relates to population centers, coupled with the proximity to a large block of U.S. Forest Service land (four miles east), minimizes the potential for future heavy use.

Intensive recreation development actions are not planned for the property. This need is adequately supplied locally by private industry and U.S. Forest Service developments. Such developments include picnic areas, swimming beaches, other day-uses, overnight camping and related support facilities.
ANALYSIS OF ALTERNATIVES

Pershing, because of its restrictive soils and cover type, does not lend itself to satisfying a large variety of potential uses. Several alternatives were discussed but the Property Task Force did not go in-depth with this effort (See page 3). The primary management direction selected is the best use of the area determined by the Master Planning Process. The goal and objectives established represent the best use of this property.

Recommended Management Program:

The property is designed to develop and maintain habitat for sharptailed grouse. Wetland habitat types for waterfowl and associated fur-bearers will also be developed and managed. The primary public use of the area will continue to be hunting and trapping. Use levels projected are not anticipated to detract from the property goal.
### Pershing Wildlife Area - Type Acreage

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* Burn Unit  
** Future Burn Unit  

Upland Acres = 4,453 - 65%  
Lowland " = 2,448 - 35%  

Upland -  
Open Acres = 2,050 - 46%  
Wooded Acres = 2,403 - 54%  

Lowland -  
Open 462 - 19%  
Wooded 1,346 - 55%  
Water 640 - 26%
Table 2

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<th>Flowage Name</th>
<th>Surface Acres</th>
<th>Maximum Depth</th>
<th>Maximum Length</th>
<th>Maximum Width</th>
<th>Miles of Shoreline</th>
<th>pH</th>
<th>M.P.A.</th>
<th>Cond. @ 77°F</th>
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Total: 640 (716 max.) 16.38