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GENERAL NOTES

Hazards of Fishing Gear to Wildlife of Lakes in Arkansas

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Fishermen in Arkansas cover many kilometers (km) of shoreline and hectares of water while angling. The many lakes in Arkansas support much fishing pressure, resulting in a large amount of lost line, baits, and lures that eventually lie along shorelines. Fishing lines that are snapped off or cut and thrown away by fishermen usually wash onto shore. Crank baits, plastic baits such as worms, jig skirts, salamanders, and lizards, and other types of floating lures may be lost or thrown out and eventually mix with debris on the shore.

Many waterfowl species forage along shorelines and in the adjacent water; whereas diving ducks, coots, and grebes forage underwater near shorelines in search of aquatic vegetation and insects (Bellrose, 1976). Shorebirds forage for insects, fish, and other aquatic animals along shorelines (Tacha and Braun, 1994), and raccoons (*Procyon lotor*) and river otters (*Lutra canadensis*) search these areas for crayfish, frogs, other small animals, injured waterfowl, persimmons, and other fruits (Lotze and Anderson, 1979; Sealander and Heidt, 1990; Larivière and Walton, 1998). Most lures are made to look realistic enough to entice fish into biting or ingesting them, and they may inadvertently get the same but undesired response from birds or raccoons.

In Vermont and New Hampshire, anglers have exchanged lead sinkers for nontoxic alternatives to protect birds from lead poisoning they may get by picking up lost sinkers (National Wildlife, World Edition, 2002, 40(3):63). State wildlife magazines are reporting the problems of lost line and baits (e.g., the death of a Great Blue Heron by entanglement in discarded line in Nebraskaland Magazine, 2002, 80(1):9) and pelicans have been reported entangled or hooked on lost lines or baits when diving for food (Wildlife Conservation, 2002, 105(2):8). In Sweden, cormorants have been found drowned in fishing nets (Engstrom, 1998). Obviously, the problems of unintentional damage to wildlife by fishing equipment are global.

Our objectives were to quantify the frequency of baits and line along selected heavily-fished shorelines, and to search for indications that wildlife of DeGray Lake might be ingesting or snared in such materials. Also, we contacted people involved with wildlife rehabilitation via electronic mail to obtain observations of wildlife-bait problems

witnessed on other bodies of water in Arkansas.

Study Area.--The field portion of this study was done on DeGray Lake, Clark and Hot Spring counties, in southwest Arkansas. DeGray is a 5,587 hectare (ha) impoundment that was created in 1972 by the U.S. Army Corps of Engineers via the damming of the Caddo River. The lake has 333 km of shoreline and is a popular fishing area renowned for its largemouth bass (*Micropterus salmoides*), hybrid bass (*Morone saxatilis x chrysops*), crappie (*Pomoxis* sp.) and other game fishes. Many access points provide opportunities for fishing along these shorelines. The shorelines of this lake generally are rocky and have fairly dense, brushy cover, with the exception of areas maintained by the Corps of Engineers and state park land. There also are many small coves on the lake that support dense brush and harbor heavy concentrations of debris that wash up after periods of high water. Debris include limbs, logs and other organic matter, as well as trash (bottles, plastic bags, cans) and other various anthropogenic refuse -- including fishing line and baits.

We walked portions of the shoreline of DeGray Lake, focusing on heavy use areas such as the lodge and marina areas, and near State Highway 7. Search efforts were conducted during May 2000, and from January 2001 until March 2002, and focused on areas of debris and latrine sites of raccoons. Areas searched extended from the edge of the water up the shore into brush where debris was found, with each section of shoreline searched twice. Areas that contained large amounts of debris especially were targeted. Baits and some lines discovered at these areas were photographed, then were placed into ziplock bags.

E-mail requests for information relating to injuries to wildlife due to fishing gear were sent to several state wildlife rehabilitators, local university biology departments, state parks, and wildlife refuges.

A total of 20.3 km of shoreline was searched between January 2001 and March 2002, with samples collected from 20 sites, and a total of 40 baits found. The majority of baits recovered were soft worm, salamander, or lizard types (52.5%) with the remainder of the sample composed of hard spinner baits, crank baits, and other hard plastic lures.

On one 1.7 km section of shoreline near State Highway 7, we found 19 lines and 13 lures, and along the shoreline of

DeGray State Park Marina, we found 10 lines and 20 lures. An average of 3.0 lines and 2.0 lures per km was calculated over the study area.

Some baits were found at the edge or floating in the water. Several hard baits were found with line still attached and tangled in small trees and bushes on shore. Hard baits often had rusted hooks, and some were hanging from debris in a manner that would easily snare mammals or birds that encountered them. Many of these baits were suspended from bushes and hung down 0.5 meters (m) or less above the ground.

Plastic worms sometimes still retained hooks that could impale an animal if the animal attempted to chew or swallow the lure. A majority of the lines found were lying along the shore well out of the water, and many of them were tangled up into balls. Some lines were found stretched out as much as 3-4 m.

Latrine sites of raccoons tended to be located on logs or on bent willows adjacent to the water and could consist of one to several defecations. Nineteen latrine sites were discovered within a 4 km stretch of shoreline in the area of DeGray State Park Marina. Numbers of latrine sites of raccoons averaged 1.4 per km along these same shorelines which had been searched for baits.

In the summer of 2000, a raccoon latrine found along the levee of DeGray Lake on State Highway 7 contained seeds of persimmon (*Diospyros virginiana*) and the remains of a plastic worm that had passed through the digestive tract of the raccoon. In January 2001, a latrine located on a bent willow tree (*Salix nigra*) on a peninsula of the island containing DeGray Lodge contained persimmon seeds and most of a plastic worm that had remained intact during its passage through the raccoon. In January 2002, in this same general area, a latrine was found with 3 pieces of a green plastic worm embedded in the dropping. Overall, 10.7% of latrines (3 of 28) contained plastic worms whereas 17.9% contained remnants of paper towels and plastic kitchen and trash bags (5 of 28).

E-mail responses documented additional incidents involving wildlife and fishing gear in Arkansas. In particular, waterfowl and birds that forage in and around water were noted to have come in contact with these hazards.

K. Nichols and his wife were on Lake Dardanelle in 2000 and observed a man pulling a net from the water that contained at least 10 drowned diving ducks identified as lesser scaup (*Aythya affinis*). The dead ducks were removed and discarded into the water. In early 2002, J. Wilson of Tennessee found a Northern Flicker (*Colaptes auratus*) tangled in fishing line on the banks of the Mississippi river (which he untangled and released). "Years ago" S. Rhodes of North Little Rock discovered a young barn swallow (*Hirundo rustica*) at Beaverfork Lake near Conway (Faulkner county)

that had been caught in fishing line. Within 15 minutes after being freed, the swallow recovered and flew away. In 2000, D. G. Krementz of the Arkansas Cooperative Fish & Wildlife Research Unit rescued a mallard (*Anas platyrhynchos*) and a pelican (*Pelecanus erythrorhynchos*) at Bella Vista that had injuries due to fishing hooks. The mallard had been hooked on its beak, and the pelican was hooked on its leg. H. & M. Parker related a story about finding a common loon (*Gavia immer*) at Millwood Lake that had been snagged by the wing on a trotline.

It is obvious from the data from DeGray Lake that many fishermen lose or throw away baits and lines and these items end up on shorelines and in bushes where they become a hazard for wildlife. The discovery of remains of a plastic worm in feces at each of three latrine sites of raccoons is evidence that soft baits are ingested with adequate frequency for concern. Baits with hooks hanging in brush along shorelines have a potential of snagging wildlife that pass by.

Education concerning the problem of discarded or lost fishing gear on wildlife could help convince anglers to never intentionally discard gear, which should help decrease the frequency of damage or losses of wildlife due to encounter events. Further, interested groups might organize volunteer cleanup campaigns along rivers or lakes, specifically targeting lures and line. Campaigns around some Arkansas lakes managed by the Army Corps of Engineers already are effective in collecting various forms of trash. We believe that lures and line also should become a focal point of cleanup and education.

In addition, fishermen using nets should avoid setting their nets in areas in which diving ducks presently can be seen foraging. Trotlines should be removed from the water as soon as the fisherman ceases to use them, and current state regulations require daily checking of trotlines (Arkansas Fishing Regulations 2002). Following these suggestions and regulations more carefully can help reduce losses of non-target wildlife.

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