NMT Network News

Spring - Summer 2005

Northwest Marine Technology, Inc.

Helping rainforest communities manage their forest resources with VIE tags!

Julia Jones & Neal Hockley

Since 2001, we have been living and working in the eastern rainforests of Madagascar. We first came to the area as Julia was carrying out her PhD research on the sustainability of crayfish harvesting. We spent three years studying the sustainability of the harvest of the most important crayfish species (*Astacoides granulimanus*) in the Ranomafana National Park area. This work has been really successful and produced some interesting results. Perhaps the most important of which is that *A. granulimanus* is more resilient to harvesting than previously thought and the current harvest appears to be sustainable. We have spent the last few months translating these results and giving presentations here in Madagascar so that this research information is available for decision making on how best to manage the crayfish resources.

A fantastic team, many of whom were villagers with many years experience as crayfish harvesters, carried out a large scale study (26,000 crayfish individually marked with VIE tags) to look at the sustainability of the crayfish harvest.

Crayfish are not the only important forest product in this area. The people among whom we live and work and many households, especially those poorer ones, depend heavily on a variety of forest resources. These may be used in the home or sold locally and include wild honey, *Pandanus* fronds (for weaving mats used for drying rice), tree ferns (used for making plant pots highly prized by horticulturalists) and edible frogs. Our project known as *Vokatry ny Ala* (fruits of the forest) aims to help communities manage their forest resources more sustainable, by combining scientific knowledge with villagers' skills and knowledge. Edible frogs are not traditionally eaten in the area, in fact many villagers are still horrified that people want to eat what they say look like 'peeled white people'. However, they have a high value in nearby towns where the French influence has made them a prized food. Almost nothing is known about the ecology of this endemic frog (*Mantidactylus guttulatus).* So, a first step in understanding if the current harvest levels are sustainable is to find out simple facts such as their growth rate and natural densities in different habitat types. We started a pilot mark-and-recapture study in August 2003. We have just completed the first year of this study and the results are encouraging.

Marking an edible frog with purple VIE color

Our marking system using VIE tags seems to be working well. We give each frog an individual mark: there are three positions on each leg (two in the thigh and one in the calf). Each mark can be of any colour. The marks have been retained well. In this pilot study we gave each frog an individual toe clip (four out of the ten available toes were clipped on each frog) so we could be sure the VIE tags were not being lost. In the larger scale study which we are now starting, we plan to do away with the toe clipping as the VIE tags have proved themselves and toe clips are more likely to cause infection or affect growth and survival.We have also had very good recapture rates and though this is only a small study it has already told us that the species is not a very fast growing, annual species. More data is needed to understand its growth rate in more detail. The potential of VIE tags for studies of amphibians has yet to be fully realised, however, with renewed concern in the herpetological world of the negative affects of toe clipping (Mccarthy & Parris 2004), less damaging methods are likely to become increasingly sought-after.

For more information contact Julia Jones: julia.jones@cantab.net

Lifelong Identification

by Geraldine Vander Haegen

When we talk with customers about upcoming tagging projects, the subject of tag retention often comes up. Tag retention varies widely with the type of tag, the species being tagged, the tag location, and the skill of the tagger. The coded wire tag is particularly notable for its dependably high retention rates across many families, even when implanted in very small animals. Retention for the life of the animal is the norm, but we would like to highlight some particularly interesting cases of long-term tag recoveries of coded wire tags.

Missouri Sturgeon

Fisheries biologists with the Missouri Department of Conservation have recovered the oldest coded wire tagged fish that we are aware of. They have been tagging and recapturing shovelnose sturgeon on the Missouri and Mississippi rivers for decades to gain insight into the number of fish present, how long they live, how fast they grow, where they travel, and how anglers affect the populations. This long-term effort was rewarded in late 2002 when biologists recaptured a fish that was tagged by one of their predecessors an incredible 24 years before. The 4-pound shovelnose sturgeon turned up in a net in the Missouri River near Jefferson City, 119 miles from the original tagging site. William Pflieger, a ground-breaking researcher tagged the fish near St. Louis, Missouri in 1979.

Michigan Lake Trout

In 1985, the Michigan Department of Natural Resources began tagging lake trout from Lake Huron with coded wire tags. Since then, several million tagged fish have been released, and a successful tag recovery program implemented. In 2003, a lake trout from the first 1985 tag group was recovered 18 years after release. This tagging program demonstrated that lake trout remain in the catch throughout their lives and researchers also observed significant differences between strains in their age at return.

Mike Shane shows the fish head countertop display units that have been placed in tackle shops throughout southern California. These displays remind fishermen to save and donate the heads of white seabass they catch and the cards provide information about the program and drop-off locations.

Sea Bass

Since 1986, researchers at Hubbs-SeaWorld Research Institute (HSWRI) in California have cultured, tagged, and released more than one million white seabass as part of a program to evaluate stock enhancement for rebuilding populations of this popular sport fish. HSWRI has developed a widespread program for sampling the sport and commercial catch to recover the coded wire tags. Over 1,200 tagged fish have been recovered and the data has shown researchers just how widely these fish travel – in some cases tagged fish were recovered more than 100 miles from the release site. In 2004, two fish to were recovered 10 years after release. They were over 36 inches in length and weighed more than 17 pounds.

Continued....

Snook

At Mote Marine Lab in Florida, researchers are assessing the effect of release habitat on recapture rate of hatchery reared snook as part of a marine stock enhancement program. The fish are regularly monitored by netting. They recently recaptured their largest hatchery-released snook to date at 6 years old and 34 inches long. This particular snook was about 7 inches long and 10 months old when released in 1999 in lower Bowlees Creek in Sarasota Bay – the same spot where it was recaptured 5 years later.

This snook was recovered five years after being tagged and released from a hatchery in Florida. Photo courtesy of Jamie Brennan.

Paddlefish

Paddlefish were historically distributed throughout most of the major tributaries of the Mississippi River Basin. In 1995, 22 states joined together and began collecting and tagging adult paddlefish in the field and tagging any hatchery released fish with coded wire tags. In the long term, this tagging data will lead to new and progressive management schemes for these important big river fish.

Juvenile paddlefish are tagged with coded wire tags before release from hatcheries in the Mississippi basin.

Approximately 1.7 million juvenile hatchery paddlefish have been coded wire tagged and released and 17,000 wild adult paddlefish have been captured and tagged. To date, 2,160 tagged fish have been recovered. Most recoveries are of fish 6 to 8 years after tagging. So far the longest period between marking and recapture is 12 years. This fish was tagged in South Dakota in 1991 and recovered in 2003, also in South Dakota.

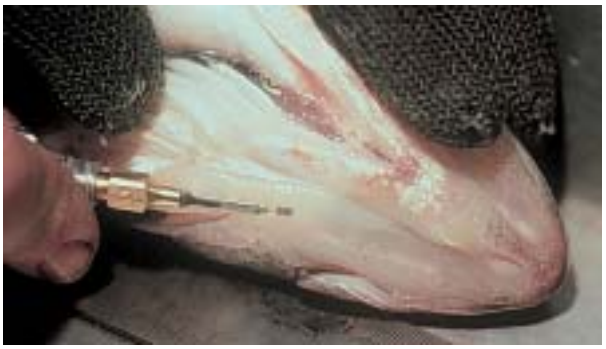
These are just a few examples of the long-term data that can be collected using coded wire tags. If you have an interesting recovery of NMT's tags, we would like to hear about it. Please contact Geraldine Vander Haegen: biology@nmt.us

Managing Walleye in Iowa

by Joe Larscheid, Iowa DNR

Each spring in Iowa we capture spawning walleyes with gillnets that we set in the lakes for about two hours. Gillnets set in the spring are very effective at capturing fish that are cruising the shoreline looking for mates. Primarily larger (17 + inch fish) fish are caught. These fish are then brought into the Spirit Lake Hatchery where they are spawned, tagged with a Visual Implant Alpha tag, and released back into the same lake as captured. We started tagging walleyes in 1990 and so far we have marked 14,014 walleyes and recaptured 3,607 individuals. Some walleyes were caught up to 8 times during this time period and one walleye was caught 14 years after it was first tagged.

Recaptures of individually marked walleyes over time allow us to estimate and compare the abundance, survival, recruitment, and catch ability of male and female walleyes in our lakes. In addition, multiple recaptures of individual walleyes allow us to measure walleye growth over time. These actual growth measurements are being used to validate our age and growth estimates from dorsal fin spine sections. Recaptures of tagged walleyes also allow us to estimate walleye movement between connected systems. All of this information is critical and is used to develop and implement management options for sustaining and enhancing our walleye populations in Iowa.



The VI Alpha tags are inserted into the clear tissue on the underside of the walleye mandible

Tech Tip: The Handheld Wand Detector

Proper wand function requires good battery contact. During regular wand maintenance check that the battery is making tight contact with the battery clips as in Fig. 1a.

Poor contact between the battery and battery clips, as in Fig. 1b, results in intermitant function of the wand.

Replacing the battery pads with new, thicker pads will improve battery contact.

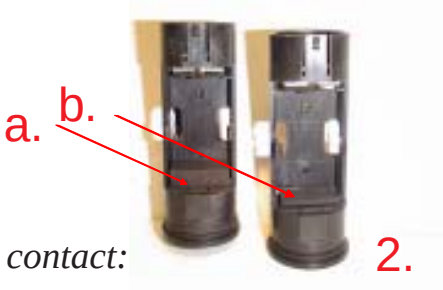


Figure 2. shows the difference in battery pads.
New pad (a.) = 3/8 inch thickness
Old pad (b.) = 3/16 inch thickness

New battery pads can be sent to customers at no charge contact:
techsupport@nmt.us 360-468-3375

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