West Virginia Division of Natural Resources

Furbearer Management Newsletter

Spring/Summer 2015 Wildlife Resources Section

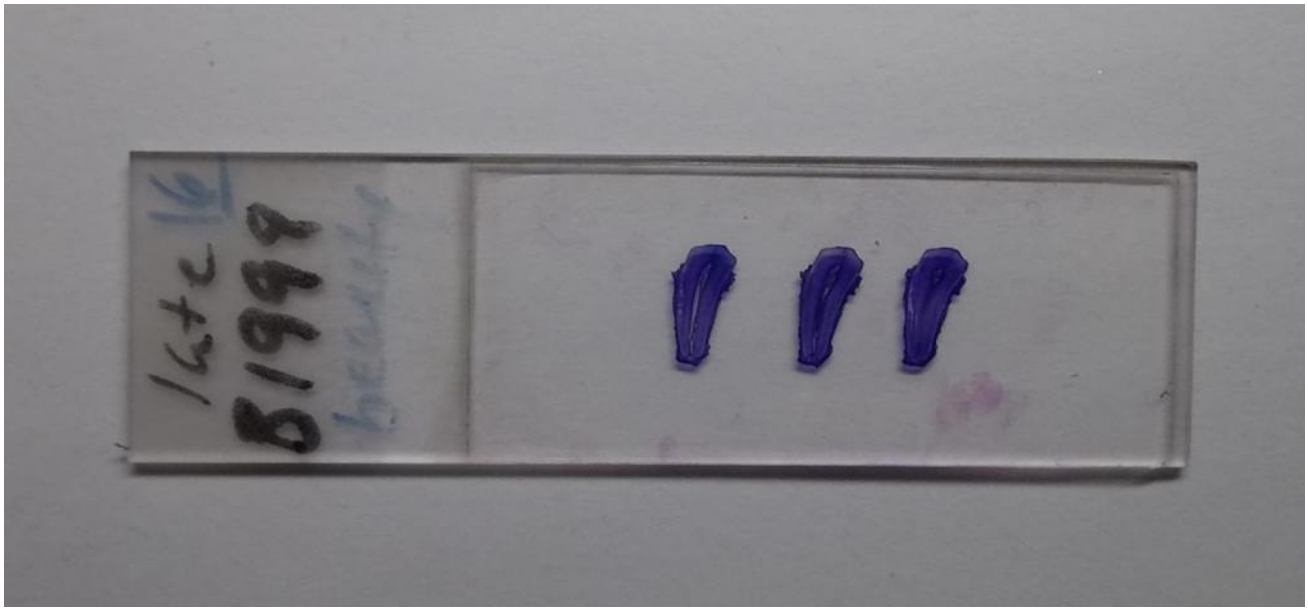
As usual, make sure you read about our trapper survey below and participate. If you can't print the page, contact Rich Rogers or any WVDNR Wildlife Resources office and one will be sent to you. Also, remember to turn your skinned bobcat carcasses in to collect a $20 gift certificate again this year. See instructions on page 15 of the newsletter. Please direct correspondence to: Rich Rogers, WVDNR, 1 Depot St., Romney, WV 26757, Rich.E.Rogers@wv.gov.

Bobcat Ecology in West Virginia

The West Virginia Bobcat Ecology Study is well underway at WVU. To date, 300 bobcat carcasses have been collected for aging and female reproductive tract analysis. Canine teeth have been extracted and are being analyzed to determine age. WVU graduate student, Stephanie Landry, is currently analyzing female reproductive tracts to determine average litter size of West Virginia bobcats. Survival and reproductive rates will help WVDNR biologists determine how the state's bobcat population will respond to different levels of harvest over time.

Teeth are chemically softened, cross sectioned, stained, and placed on a slide to count layers of cementum annuli which are added each year as the tooth grows similar to tree growth rings. Ages of all bobcats will then be used to determine population age structure and survival from year to year. A previous bobcat study conducted in the 1980s yielded a survival rates of a 61% for juveniles and 64% for adults for the year in which the data were collected. This translates to around 60% of bobcats having survived from one year to the next. While adult survival generally remains stable, juvenile survival does not, and can vary greatly from year to year. Juvenile survival may actually be considered the key to bobcat population growth.

WVDNR biologists use a population model that requires current survival data to accurately predict the effect harvest will have on future populations. While it will not be possible to monitor juvenile survival every year, the current study will allow biologists to get an updated picture of juvenile survival for a two year period, thirty-five years after the original bobcat study was conducted. It will also be worth finding out to what extent adult survival has changed with the seasonal bag limit having been increased to 3 per year since that time as well.



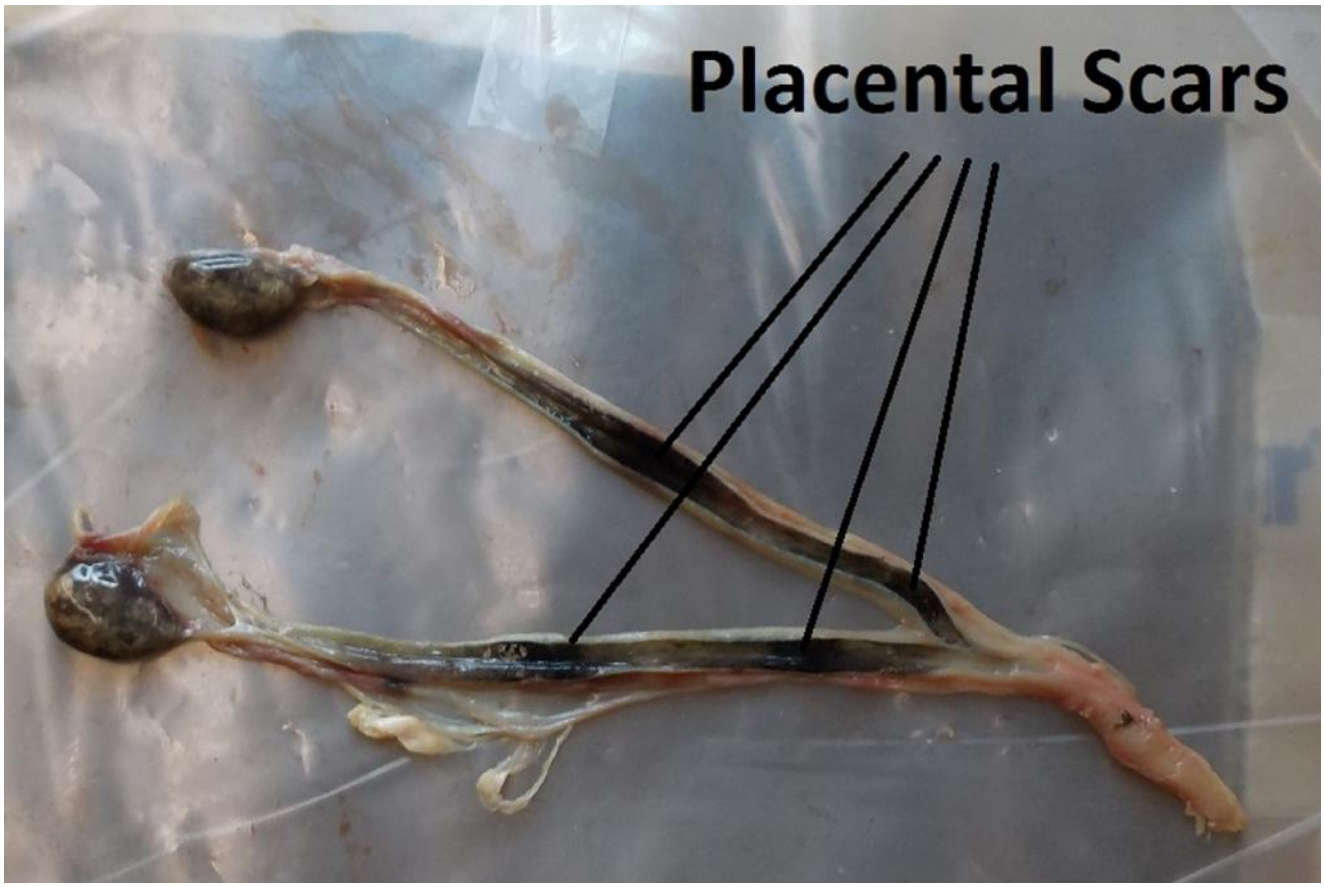
Bear premolars ready to be examined. Bobcat teeth will be examined in a similar manner.

Female reproductive tract analyses are also proceeding with female bobcat ovaries and uteri being slit open and examined for corpora lutea and placental scars, respectively. Corpora luteal bodies are found in ovaries and are indicative of eggs having been released. Placental scars, a more accurate method of determining the number of young carried by a female, are dark marks found on each side of the bipartite, or forked, uterus. These marks indicate attachment of placental tissue and are evidence that fetuses were present during the previous breeding cycle. Numbers of corpora lutea are generally higher than number of placental scars which are only slightly higher than actual litter size. Because of this,

placental scar count is the preferred method of determining reproductive rate for bobcats. Number of young per female is fairly consistent across the bobcat's range in North America and has not changed with time. It is predicted that the current study will yield a similar result of 2.3-2.8 young per female. A lower or higher rate would be cause for further study to determine cause and would complicate future population estimates.

Additionally, carcasses are being examined for presence of parasites and evidence of disease to assess overall health of bobcats in West Virginia.

Many thanks to trappers and hunters who have contributed carcasses for the project. The second year of data collection will begin this coming fall with trappers and hunters again being called on to provide carcasses. As last year, a $20 gift certificate will be offered for each carcass donated. Three hundred carcasses will be needed from the coming season.



Bobcat uterus with ovaries attached showing both sides slit open with two placental scars in each side.

$20 Gift Certificate for Bobcat Carcasses

There is a $20 gift certificate being offered for each bobcat carcass turned in to WVU for the West Virginia Bobcat Ecology Study. For more information, contact Stephanie Landry at WVUBobcat@mail.wvu.edu or call (304)293-0050.

Population and Genetic Modeling of Bobcats in West Virginia

In an effort learn more about West Virginia's bobcat populations and validate the model being used by the WVDNR to assess the effects of yearly harvest, WVU PhD candidate Tom Rounsville is attempting to determine how many cats exist, where they are located, and how they are moving across the landscape in the different ecoregions of the state. Since March 2015, using the study design prescribed by Rounsville, WVDNR wildlife managers and biologists have been collecting bobcat hair samples in five counties in each of the six different ecoregions of the state. A baited, plastic cubby with strategically placed gun brushes to snag hair is placed in each of twenty-five 10 km^2 cells of a 250 km^2 area in each county. These cubbies are monitored for activity once each week for four weeks in each county.

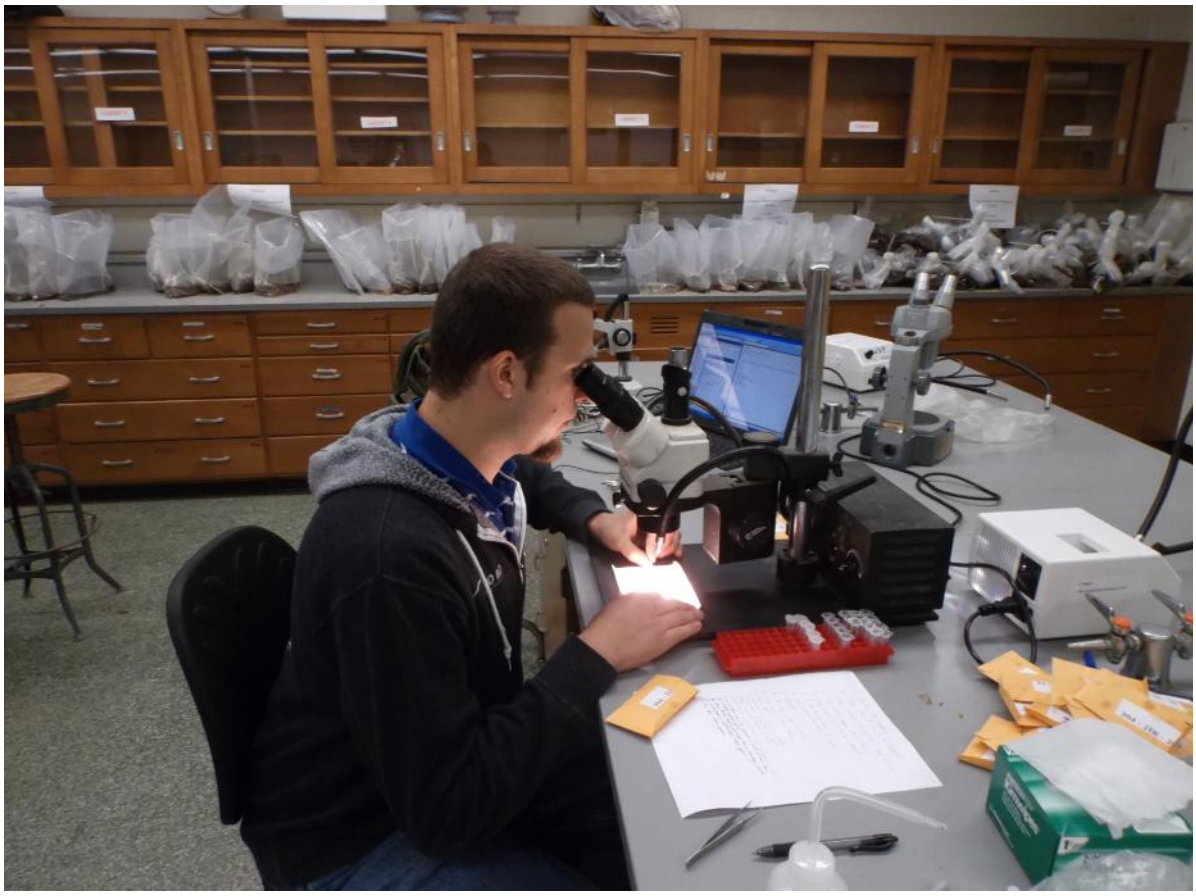
Biologists use mathematical formulae in mark-recapture models to determine densities of animals in a given area. During the mark phase, animals are marked or identified. During the recapture phase, new captures and recaptures are identified. The number of recaptured animals should be proportional to total number of marked animals in the population of the area being sampled. Dividing the number of marked individuals from the mark phase by the proportion of marked animals in the recapture phase will yield an estimate of total population size. In this case, individual animals will be identified by DNA analysis of hair samples. They are "recaptured" if they show up in the second two week period of the sampling session.

Currently, Rounsville has only identified bobcats from other species through gross analyses of hair under a microscope. Physical characteristics of hair shafts and roots vary between

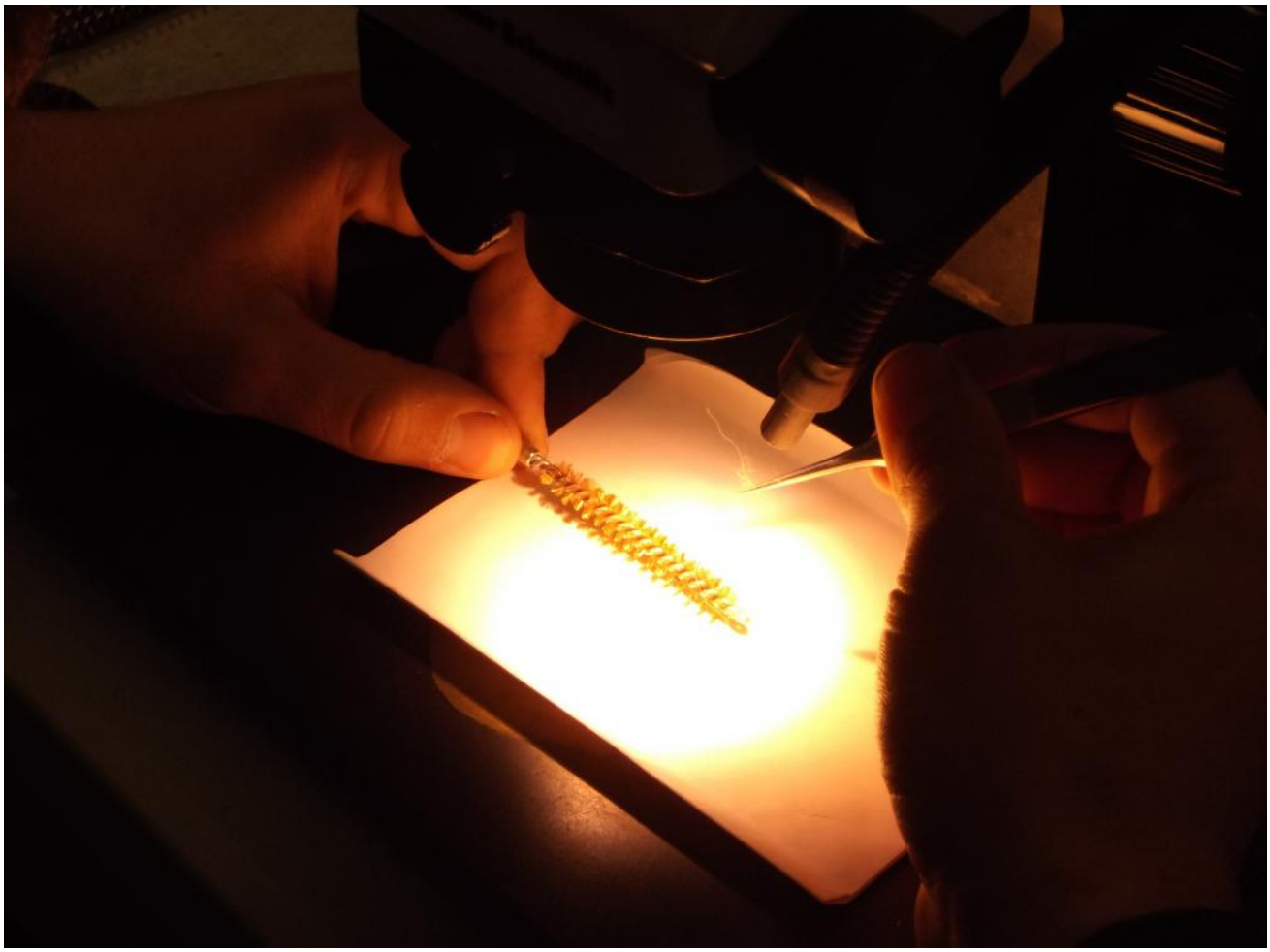
species and may be clearly seen under a microscope. He is pleased with the number of bobcat hair samples obtained to date. Interestingly, numbers of samples is correlating very well with harvest levels in each of the ecoregions.

Occupancy modeling is used to describe occurrence (presence) of a species and relative abundance (how much of the available habitat is occupied) across landscapes. This type of modeling is relatively new and will determine to what extent bobcats are uniformly or patchily distributed.

Finally, DNA analysis will help determine how bobcats are moving between areas of West Virginia and if barriers to movement, whether natural or manmade, are present. This will let WVDNR biologists know whether they should consider managing bobcats regionally rather than on a statewide level.



Examining hair samples at WVU taken from a site in Morgan County.



A hair sample plucked off of a cubby gun brush.

Virginia Tech Appalachian Coyote Study

The following article was reprinted in its entirety from the Roanoke Times, April 2015. Results from this study are very applicable to similar habitats in West Virginia, and for that reason it has been presented in this newsletter. The study area was adjacent to West Virginia and a number of the radio-collared coyotes were tracked into our state during the course of the study.

By Tonia Moxley tonia.moxley@roanoke.com 381-1675

BLACKSBURG — The more coyotes you kill, the more you have.

This biological quirk sets these relatively new Virginia residents apart from most other animals in the commonwealth's forests, fields and even cities, according to Virginia Tech wildlife professor Marcella Kelly.

But it's a tough fact to accept for some white-tailed deer hunters concerned that coyote depredation may be driving deer numbers down in some areas of the state. The economic impact of deer hunting in Virginia is estimated at more than $250 million annually, according to the state's deer management plan. That makes the deer populations particularly important.

To find out how big an appetite coyotes have for venison, the Virginia Department of Game and Inland Fisheries commissioned a two-year, $300,000 study of coyote food habits and populations in Bath and Rockingham counties, overseen by Kelly, who specializes in studying predators.

The project is meant to lend more scientific insight into the ecology of the study areas, their support of white-tailed deer populations and estimates of the number of carnivores that affect them, according to Mike Fies, DGIF wildlife biologist and furbearer project leader for the state.

Deer hunters have complained for years that deer herds in the heavily forested mountains of Bath and Rockingham are declining, Fies said. Many suspect coyote are the culprit.

There are no reliable population estimates for coyotes in Virginia, according to Fies. Harvest numbers, which are a major component of wildlife population estimates, are self-reported through surveys every two years. Conservatively, there may be 50,000 coyote in Virginia. "But we don't know," Fies said.

The study — conducted by Tech doctoral student Dana Morin and a team that includes a graduate student and some undergraduates — gathered data from camera traps, GPS

tracking devices and DNA analysis of scat samples to determine food habits and population estimates for the three major predators: coyotes, bobcats and bears. Morin is writing her dissertation on the project.

Results are still being analyzed, but there is one particularly surprising finding: Bobcats eat a lot of deer, and there may be more bobcats in the woods than biologists thought, Morin said.

Coyotes definitely eat deer, too, the scat samples show. But Morin and Kelly say it's likely that they — and the bobcats — are scavenging hunters' leftovers or deer killed in some other way, and taking the occasional fawn. Unlike wolves, which are considerably larger and hunt in packs, coyotes and bobcats pose little to no threat to adult deer.

Coyotes look for the easiest meal available, Morin said. Much of the time that translates to rodents, especially near and on agricultural lands.

Kelly said that when a deer herd is already in decline, it's possible that predator pressure, such as coyotes taking fawns, could have an effect. But coyote typically do not cause the population declines. Those are governed by larger factors, like food availability.

Biologists are not worried that deer will go extinct, even in the study areas, Morin said. Their numbers "are just lower than hunters prefer."

In fact, trees may be more of a problem for deer hunters than predators. Much of the woodlands of Western Virginia have matured over the past century or so, pushing deer herds to find better food sources elsewhere, Kelly said.

Deer would need necks as long as giraffe to feed among the mature canopy trees that cover much of the study area, Kelly said. And those trees tend to shade out other food sources that would grow near the ground in younger forests.

And killing more coyotes is unlikely to help deer populations, she said. Instead, it will boost coyote populations.

‘We are the predators’

Coyotes arose 108 million years ago and tend to fill niches left by the decline of larger, more specialized predators such as wolves and mountain lions, Kelly said.

Virginia’s wolves and mountain lions were extirpated more than 100 years ago. Coyotes came to the state in the 1970s and 1980s, as two populations met on a cross-continent migration, one from the south, and another from the north, giving Virginia coyotes a high degree of genetic diversity, Morin said.

Coyotes are the “most adaptable mammal in the world,” Fies said. They can live in the cold of Canada, in the deserts of the southwestern U.S., and in Chicago. One was photographed recently on the roof of a building in New York City.

But they have few friends.

People and even governments have been trying to kill off coyote since Colonial days, Morin said. In that time, the animals have spread from six states to 49. It’s already open season on coyote in Virginia, where they are classified as a nuisance species. That means they can be hunted, trapped or taken at any time of the year, and there are no bag limits.

In 2013-14, 2,898 coyote were reported taken by trappers, and 22,705 were reported taken by hunters. But the harvest totals may be overstated, Fies said. The figures are based on biannual surveys done by mail.

About 17 Virginia counties have coyote bounty programs on the books, although fewer than a dozen were funded in 2014, Fies said. They don't work, though, as 150 years of failure in the Western states has shown.

"Logically, it seems like a good idea," he said. "But it doesn't work that way."

Coyotes are not just adaptable, they respond to high mortality rates by increasing their reproduction, Kelly said. Hunting and trapping stimulates this, causing coyote females to breed earlier, birth larger litters and keep juveniles in their family groups longer before forcing them out their own.

Conversely, when coyote survival rates increase, the females breed later, birth smaller litters and push juveniles out of family groups sooner.

"We are the predators. They are responding to us," Kelly said.

Out of 15 studies nationwide of coyotes' impact on deer populations, Morin said only two have shown any negative effects.

'They're just coyotes'

That's not to say coyotes never cause problems. Damage to livestock operations does happen, and it can be significant.

"A farmer that loses a whole crop of lambs in one night, that's significant," Fies said. However, those kinds of issues can be managed on the farm level. The U.S. Department of Agriculture's wildlife services program traps and shoots problem coyotes to reduce agricultural losses, he said.

But “the vast majority of coyotes don’t cause anybody any problems whatsoever,” Fies said. “They are rarely seen.”

Morin describes them as shy and submissive. After catching them in the field in foot-hold traps, Morin said she was most often able to subdue them with just a bed sheet, taking measurements and samples and fitting the coyotes with GPS collars without a struggle.

And anyway, on an ecological level, it’s impossible to get rid of them. Biologists have not been able to identify a level of hunting or trapping that will reduce coyote populations, Kelly said.

Coyotes aren’t all bad, even for hunters. Fies said they prey on groundhog and raccoon, keeping their populations in check. This helps protect homeowner gardens and ground-nesting game birds like turkey, grouse and ducks. Game bird populations tend to be higher in areas where coyote are known to be present, he said.

By the same token, deer aren’t all good. As the “largest wild herbivore … in the Commonwealth, deer have a profound impact on forest ecosystems. Deer also inflict millions of dollars in damage to crops, trees, and gardens and are a safety risk on our highways,” according to the state’s deer management plan.

Are coyotes good or bad for the forests? Morin bristles a little at the question.

People who dislike coyote project sinister human characteristics on them, often describing them as “wily” and “sneaky,” Morin said. Meanwhile, people who love them go too far the other way, sometimes feeding them and causing confrontations.

In the wild, “coyotes aren’t good or bad,” Morin said. “They’re just coyotes.”

White Bobcat Caught in West Virginia

Doug Smith of Boone County got quite a surprise while calling predators just north of Madison in Boone County with a friend during the 2008-09 hunting season. He was calling when he spotted something white moving toward him. When he saw that it was very clearly a white bobcat, he fired. The cat had dark blue eyes and was not a true albino making it, perhaps, even more rare. Some might think this was a cross between a bobcat and a domestic house cat. But, such crosses have never been verified scientifically. Mr. Smith contacted Stephanie Landry of the WVU Bobcat Ecology Study thinking she might be interested in the photos. He has graciously allowed us to reprint those photos here.

2014-15 Otter Harvest

The 2014-15 river otter trapping season resulted in a harvest of 153 otters. The harvest dropped quite a bit this season as did harvests of other species. Districts I, IV, and VI remained stable while harvests in the other three districts dropped 30-50%.

Harvests were again reported in 39 of West Virginia's 55 counties with average harvest being 4.0 animals/county where harvests were reported. This is down from 4.9 in the same number of counties last year. Top counties were Greenbrier (15), Monroe (10), Raleigh (10), Ritchie (9), Fayette (8), and Gilmer (8). District harvests may be seen in the table below. Legal harvests were reported in Boone and Clay Counties for the first time since the seasons have opened.

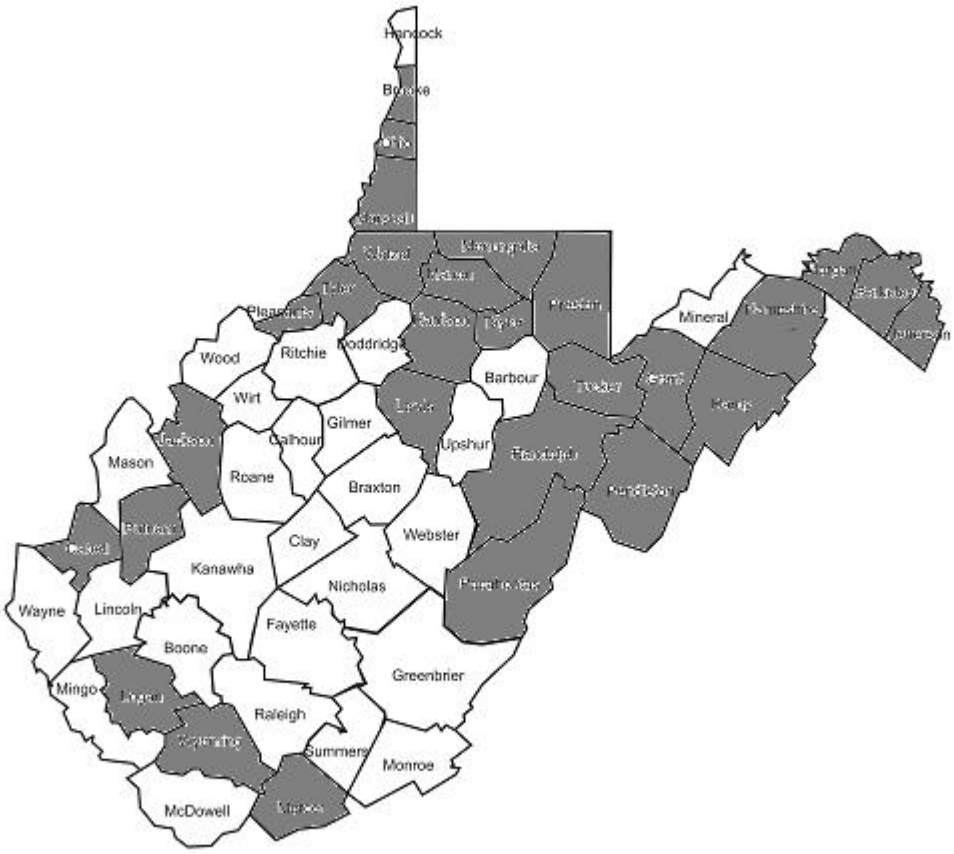
DNR District	2011-12 Harvest	2012-13 Harvest	2013-14 Harvest	2014-15 Harvest	2014-15 Harvest/County With a Harvest
District I	7	15	19	15	3.0
District II	32	28	23	12	2.0
District III	49	35	52	33	4.1
District IV	52	65	59	56	7.0
District V	5	14	12	7	1.4
District VI	61	35	28	31	4.4
Unknown	-	-	1	2	-
State Total	206	192	193	156	4.0

Trapper Survey

Last year's trapper survey indicates that efforts to catch all species except mink, muskrat, raccoon, and red fox have increased. This is indicative of declining numbers of animals in

the field when compared to the previous year, except for those species noted. The most effort is expended on fisher, skunk, bobcat, mink, and gray fox. Skunk is most probably high due to trappers reporting, but not necessarily targeting this species. Easiest animals to catch were beaver, muskrat, and raccoon. More surveys are needed to make this a more valuable tool. No surveys were returned from the central part of the state. Survey forms may be obtained from any WVDNR District Office, www.wvdnr.gov, the West Virginia Trappers Association web site, or simply use the one provided at the end of this newsletter for the coming season.

West Virginia Trapper Survey					
Species	2011-12 Days/Catch	2012-13 Days/Catch	2013-14 Days/Catch	2014-15 Days/Catch	Ave.
Beaver	1.3	1.4	2.0	2.1	1.7
Bobcat	11.4	16.6	28.2	25.5	20.4
Coyote	5.5	7.8	11.9	14.0	9.8
Fisher	72.0	106.0	21.5	46	61.4
Gray Fox	10.9	7.5	18.7	21.3	14.6
Mink	5.6	16.0	25.3	23.4	17.6
Muskrat	1.4	1.5	2.4	2.3	1.9
Opossum	3.3	5.2	7.4	4.8	5.2
Otter	10.8	29.5	26.2	14	20.1
Raccoon	1.0	2.3	2.5	2.9	2.2
Red Fox	14.3	12.3	14.3	9.9	12.7
Striped Skunk	10.2	7.1	31.3	29.5	19.5
Weasel	14.0	-	-	42	28



2014-15 Trapper Survey responses covered shaded counties.

Game Checking Furbearers Electronically

During the coming trapping season, trappers will be checking beaver, bobcat, fisher, and otter electronically as follows:

1. Going online to www.wvhunt.com and follow instructions.
2. Calling 1-844-982-4325 (1-844-WVCheck). You must be registered in the system and know your unique DNR ID number to use this option. To obtain your DNR ID number, see page 24 of the Hunting and Trapping Regulations Summary.
3. Stopping at a hunting and fishing license agent. For a current list of agents, visit www.wvdnr.gov. Note: you are not required to bring the animal to the license agent.

You will be given a 13-digit game checking confirmation number that will serve as verification that you have completed the game checking process. This unique number must be written down on a sheet of paper with your name and address, or on your completed field tag, and attached to your animal.

You will be able to check multiple furbearers taken in the same county fairly quickly. Multiple animals, such as beaver, taken within the same county, will also be given consecutive numbers making it easier to write them down if using the phone.

2014-15 Furbearer Harvest

Harvests for almost all species slipped this year with the exception of bobcat, fisher, weasel, and otter. The table below shows number of pelts purchased by licensed state fur buyers, numbers of pelts shipped by individuals, and numbers of CITES seals applied to pelts during the year. Beaver, bobcat, fisher and otter all require mandatory checking.

Pelts Purchased						
SPECIES	2010-11	2011-12	2012-13	2013-14	2014-15	Shipped 2015
Muskrat	1920	6649	5909	4105	3664	1184
Opossum	2029	4976	2009	2380	1890	541
Raccoon	7495	22105	18606	13927	11520	7444
Mink	357	689	476	468	365	281
Red Fox	1752	2664	1680	3214	3037	2422
Gray Fox	1703	3188	1701	1679	1390	1363
Bobcat	926/1495*	1835/1857*	1424/1994*	1831/2008*	1805/1971*	1148
Beaver	1106/911*	2271/1587*	1322/1742*	1052/1713*	871/1107*	709
Weasel	3	15	6	6	14	
Skunk	278	557	191	332	199	107
Coyote	2302	3086	1886	2825	2353	1245
Fisher	61/87*	72/149*	74/130*	81/147*	90/166*	113
River Otter	0	0/206*	0/192*	0/193*	0/156*	11

*Number after slash mark is actual harvest as determined from animals checked at checking stations.

Links

West Virginia Division of Natural Resources	www.wvdnr.gov
West Virginia Trappers Association	www.wvtrappers.com
Guide to State Game Depts.	www.identicards.com/links/statednr.html
Assoc. of Fish and Wildlife Agencies	
Furbearer Resources	www.fishwildlife.org/furbearer.html
National Trappers Association	www.nationaltrappers.com
Fur Takers of America	www.furtakersofamerica.com
Conserve Wildlife	www.conservewildlife.org
Furbearers Unlimited	www.furbearers.org
CITES	www.cites.org

2015-2016 TRAPPING REPORT FORM
West Virginia Division of Natural Resources
Wildlife Resources Section

Read instructions on back side before completing this report.

Name _____ Hunting License #_____

Address _____

City _____ State _____ Zip Code _____ Phone _____

SPECIES	County:		County:		County:		County:		County:	
	# OF DAYS TRAPPED	# KILLED	# OF DAYS TRAPPED	# KILLED	# OF DAYS TRAPPED	# KILLED	# OF DAYS TRAPPED	# KILLED	# OF DAYS TRAPPED	# KILLED
Beaver										
Bobcat										
Coyote										
Fisher										
Gray Fox										
Mink										
Muskrat										
Opossum										
Otter										
Raccoon										
Red Fox										
Spotted Skunk										
Striped Skunk										
Weasel										
Other:										

Signature _____ Date _____

INSTRUCTIONS FOR TRAPPING REPORT FORM

This is a voluntary report that will be used to help West Virginia Division of Natural Resources biologists collect more accurate data regarding trapping success and numbers of animals harvested each year.

1. Fill in your name and full address.

2. Provide your phone number only if you would like to.

3. During the trapping season, fill in columns for # days trapped and # animals killed for **EACH COUNTY** that you trap during the legal trapping season. Two columns are provided for each county. Do not include animals that you release.

4. Use more than one sheet if you trap more than 5 counties.

5. Try to accurately record number of days trapped. If in doubt, give the closest approximation of number of days trapped.

6. Sign and date your data sheet before sending in to:

   Rich Rogers
   Trapper Survey
   West Virginia Division of Natural Resources
   1 Depot St.
   Romney, WV 26757

7. If you have any questions, call Rich Rogers at (304)822-3551.

8. **Send all completed forms in by April 30 of each year.**

9. **DO NOT** include animals caught on Animal Damage Control licenses or on nuisance wildlife permits.