

U of M researcher studies sustainable lion populations

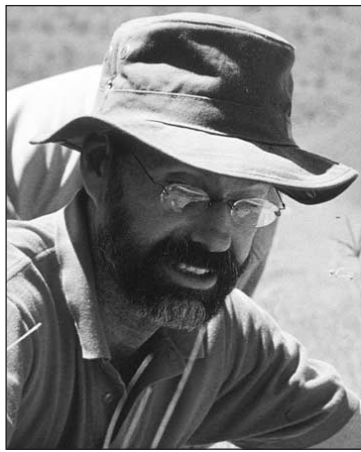
Shooting the oldest male lions can help maintain numbers

By Bob Zink
Contributing Writer

There are many reasons to be impressed with the King of Beasts. Male lions can reach 10 feet in length (excluding the tail) and weigh upwards of 550 pounds. They can eat up to a third of their body weight in a single meal, but require "only" about 15 pounds of meat a day. Hunting a trophy male lion requires a meaty budget as hunts often cost \$30,000 to \$50,000, excluding the more mundane expenses like airfare and taxidermy.

Some of the money is returned to the local people and some to help keep preserves, with the hunting concessions taking the majority (to be fair, they also employ local people).

Although most African countries are not open about the number of lions killed, Tanzania is. The number of outfitters is public knowledge and they



Dr. Craig Packer

each have a particular quota. The lion kill in Tanzania has been the topic of a long-term research study by Dr. Craig Packer, from our own University of Minnesota. Although Dr. Packer is not a hunter, he respects those of us who are and hopes that his research is relevant to the lion-hunting industry.

His sincere goal is the long-term preservation of lions. We probably wouldn't know half of what we do about lions without his work, and given how much time he devotes to lions it is

refreshing that he wants to work with hunters.

Packer and his colleagues recently published a scientific research paper in the journal *Conservation Biology*. In it, they warned that trophy hunting in Tanzania might not be sustainable under current conditions. The reason is more easily understood after a review of lion biology. Lions are social animals and live in groups called prides. Prides usually consist of several females and two or more males.

Often the female contingent does the majority of hunting, with the males coming in after the fact to take the "lion's share." Being a male in a pride, however, is no easy task. Once males reach about four years of age, they are at their competitive best and look to become the dominant male of a pride. Most prides, however, already have males not keen to leave. Often there are fights to the death, and takeovers do occur. This is especially true if the newcomers are in their prime and the other lions are older or in some way not as fit as they once were, e.g.,



The author photographed this white lion at a South African breeding facility. This is not an albino but a rare South African color phase. White lions do not survive well in the wild because they are highly visible, but they are bred in captivity and sometimes used in hunts on high-fenced ranches. Photo courtesy of Bob Zink

injury or disease.

Upon taking over a pride, the new males actively seek out cubs sired by the previous males and kill them. They do not eat them. But by killing the cubs they cause the females to come into heat, and then they will sire the next generation. It

makes no sense for a male that has just joined a pride to "invest" in young that are not his own genetic offspring.

The rule of nature is to get your own genes into the next generation. There is no reward for being a nice guy (unless the cubs in the pride were fathered by a close relative, e.g., a brother). A male lion can't count on being around for a long time and his prime years are limited. So, killing the cubs from the previous males makes perfect evolutionary sense.

A video of this killer lion behavior is available via www.outdoornews.com/links, but beware, it is not for the faint of heart.

Under normal circumstances these takeovers are not necessarily a bad thing or all that frequent. Here, however, is where hunting might cause a problem, unlike in many other species. If the pride lions are shot by hunters, it provides more numerous openings for other males who then come into prides and kill the cubs. This sets the population back because it increases turnover of males in prides and the concomitant killing of cubs, limiting the growth potential of the population.

From the female's perspective, this male behavior is not a welcome event, as the cubs are their genetic offspring. Oftentimes, females will gang up on an infanticidal male and try to drive him off. Although males are much larger than females, an angry group of lionesses is a force to be reckoned with. But, infanticidal males are often successful. Another video shows lionesses ganging up on a male; again, check it out via www.outdoornews.com/links.

Now, hunters obviously have not been actively trying to undermine lion populations. But it turns out that one of the things about a male lion that gets him shot is his mane. Male lions that are 4 to 6 years old are those starting, on average, to have an impressive mane, and this goes a long way toward making them trophies. These are also prime males in prides.

So, what's a solution? Packer and his group urge hunters to concentrate on taking older males like those in the 6-plus-year-old category, because these are past their prime and are not as likely to be active in a pride. This will stabilize the population as there will be fewer infan-

(See Zink Page 21)

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Fishing & Hunting Report

Waterfowl season starts with a few ducks and fewer hunters

Big Six

LAKE MILLE LACS

A few walleyes are being caught on the flats during the day, but the night bite has been more consistent on the mud with slip bobbers and leeches in 23 to 28 feet of water. Crankbaits also have produced walleyes at night on the shallow rocks, weedlines, and shoreline breaks. Perch are scattered on the six- to 12-foot rocks and you need to work through some small fish to put a mess of jumbos together. Muskie reports are limited and a few big pike have been caught accidentally on the mud.

Terry's Boat Harbor (320) 692-4430
www.terrysboatharbor.com

LAKE OF THE WOODS

Walleyes, sauger, and a few jumbo perch are being taken in 23 to 32 feet of water in front of Pine Island, outside of Lighthouse Gap, and in Zippel Bay on the south shore. Fishing reports also are consistent at the Northwest Angle where muskies and northern pike are hitting bucktails in the weedy bays and walleyes can be had around the islands. The shiners have just started running in the Rainy River, so look for the walleyes to start showing up in good numbers. Grouse and duck hunting reports have been favorable.

Lake of the Woods Tourism Bureau
(800) 382-FISH

LEECH LAKE

The key to walleye success has been a jig and minnow combination worked on the wind-driven points and shorelines. Depending on wind direction, that could be Pine Point, Sand Point, Cedar Point, Goose Island, the Meadows, and the Hardwoods – if the wind is hitting them. The bigger perch also have bit best when the wind blows off Sand Point and the Narrows in seven to 10 feet of water. Muskie action is slow, duck hunting reports have been relatively poor, and grouse continue to be seen in good numbers.

Reed's Sporting Goods (218) 547-1505

LAKE MINNETONKA AREA

A jig and plastic will produce bass in six to eight feet of water and a slow-trolled sucker minnow and spinner will turn northern pike in 15 feet on Lake Minnetonka. Muskies are being found on the shorelines out to the 10-foot weeds on Minnetonka as well. Fathead minnows are producing walleyes as deep as 30 feet of water during the day and in eight to 10 feet during low-light periods in Wayzata Bay and Brown's Bay. You'll find suspended crappies over 20 feet of water at Medicine Lake and Lake Sarah. There has been a few geese shot, but the ducks have been hard to find.

Wayzata Bait (952) 473-2227

RAINY LAKE

Walleyes are being caught with minnows on the reefs near the Brule and in the American Narrows in 34 to 38 feet of water. The Rainy River is providing steady walleye action as well. Look for northern pike on the humps in Cranberry Bay and on the points near Grindstone Island. Grouse hunting reports have been favorable and few ringbills and mallards have been taken by duck hunters.

Loon's Nest (218) 286-5850

LAKE WINNIBIGOSHISH

Pitch or drift a jig and minnow combination in six to 10 feet off Raven's Point, Little Stoney Point, Mallard Point, and Sugar Point for walleyes – if the wind is hitting them. The bigger perch continue to be found along the shoreline breaks in four to eight feet and you'll find northern pike on any remaining weeds.

Nodak Lodge (218) 665-2226

Twin Cities Metro

NORTHEAST METRO

Leadcore and Rapalas are producing walleyes in the Afton area of the St. Croix River in 15 to 25 feet. Anglers fishing from shore at Lake Peltier are catching crappies and you'll find sunfish and crappies in six to 10 feet at Big Carnelian Lake. Muskie action remains consistent with topwater baits and bucktails in shallow water at Forest Lake and Bald Eagle Lake. Duck hunting reports have been very poor during the first few days of the season.

Blue Ribbon Bait & Tackle
(651) 777-2421

WEST METRO

Crankbaits and sucker minnows worked along the weedlines of Pierson Lake and Lake Auburn have turned northern pike. Walleye and panfish action is slow, but you will hook some good-sized bass with plastics in the weeds on Whaletail Lake. Waterfowl hunters are shooting more geese than ducks and a few deer continue to be registered by archery hunters.

Cabin Fever Sports (952) 443-2022

Statewide

ALEXANDRIA AREA

Walleyes continue to hit minnows on the weedlines of Lake Miliona during low-light periods and in 30 feet during midday hours. Walleyes also can be had with minnows on the weedlines of Lake Le Homme Dieu and Lake Darling during the day. Northern pike and bass are hitting crankbaits and spinnerbaits on most lakes. Miliona is producing quite a few muskies as well. Duck hunting reports have been very limited.

Christopherson's Bait and Tackle
(320) 763-3255

ANNANDALE AREA

Look for walleyes to hit minnows on Clearwater Lake in 12 to 16 feet and Cedar Lake in 22 to 25 feet. On Lake Sylvia and French Lake, you'll pull a few walleyes from the shallows during the evening hours. Bass and northern pike remain active in the weeds of most lakes, while Lake John and Sylvia have kicked out a few panfish in six to 10 feet. Duck hunting reports have been limited, but there is a lot of geese to be had.

Little Jim's Bait (320) 274-5297
www.littlejimssports.com

BATTLE LAKE

During the day, minnows are producing walleyes in 20 to 25 feet at Clitherall Lake, Otter Tail Lake, and West Battle Lake. Crankbaits will produce 'eyes at night on these lakes in eight to 10 feet. Sucker minnows or spoons worked on the weedlines of West Battle and Otter Tail are turning pike. Look to Clitherall, West Battle, and Fiske Lake for panfish in 12 to 20 feet. Muskies are hitting bucktails over 18 to 22 feet at West Battle and lakes such as Stalker and Fiske are producing bass in 11 to 15 feet. Duck hunting has been "fairly decent" but bird and hunter numbers are down from last year.

Ben's Bait Shop (218) 864-5596

BEMIDJI AREA

Walleyes are hitting minnows during the day in 20 to 30 feet and at night in six to eight feet at Lake Plantagenet, Lake Bemidji, and Cass Lake. You'll find plenty of perch in 10 to 12 feet at Plantagenet and Bemidji as well. The cabbage beds on Little Bass Lake are producing crappies and muskie reports remain poor. Most waterfowl hunting reports indicated few hunters and a handful of ringbills, mallards, geese, and teal in the bag. Grouse hunting remains a bright spot.

Bluewater Outdoors
(218) 444-BAIT (2248)

BLACKDUCK AREA

Crappies and sunfish are being caught in 20 to 30 feet at Lake Pimushe and Turtle River Lake. Walleyes are taking jigs and minnows in 10 to 14 feet at Island Lake and Gull Lake, while Blackduck Lake continues to produce perch in 15 to 20 feet. Grouse hunting has been excellent and there are ducks being shot, but hunter numbers appear down.

Timberline Sports and Tackle
(218) 835-4636

BRAINERD/NISSWA AREA

Walleye fishing is consistent with minnows on Gull Lake in 14 to 18 feet or 24 to 32 feet, at Pelican Lake in 28 feet or more, and at North Long Lake in 20 to 32 feet. Sucker minnows or crankbaits are producing pike on most lakes in 14 to 16 feet. Panfish reports are limited, but bass action is strong on the weedlines of Gull, Pelican, and Lake Hubert.

S & W Bait & Guide Service/Nisswa
Guide League (218) 829-7010

CROSBY AREA

Trolling big crankbaits or casting bucktails along the trees has produced good-sized northern pike on the pits such as Pennington, Sagamore, and Portsmouth. Farm Island Lake, Rabbit Lake, and the Mississippi River have produced walleyes via redtails, as has Serpent Lake and Bay Lake in 24 to 35 feet. Look for bluegills in four to eight feet and crappies suspended over deep water on most lakes. Bass and pike action remains strong on Bay, Horseshoe Lake, the Crooked Chain, and Rabbit with spinnerbaits. Trout action has picked up by trolling cowbells on the Pennington Chain. Muskie action is slow, duck hunting has been mostly poor, and a few grouse are being taken.

Oars 'n Mine Bait and Tackle
(218) 546-6912

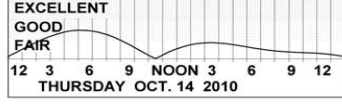
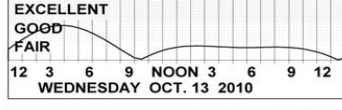
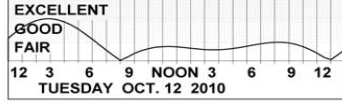
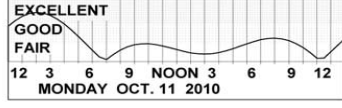
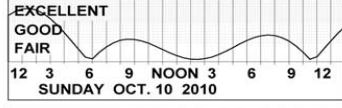
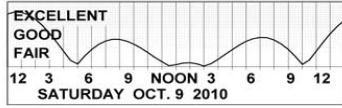
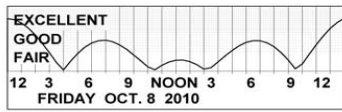
CROSS LAKE AREA

Walleyes are hitting a jig and minnow in 24 to 36 feet throughout the Whitefish Chain. Anglers are using sucker minnows on the weedlines of most lakes and finding plenty of pike. Plastics will produce bass on the weedlines and crappies are being found suspended over 16 to 20 feet at Fox Lake and Mission Lake. Duck, grouse, and deer hunters have offered very few reports this week.

Crosslake Holiday Sports (218) 692-2708

DETROIT LAKES

Walleyes continue to hit minnows on Big Detroit Lake, Lake Sallie, Lake Melissa, Big Cormorant Lake, and Pelican Lake in 25 to 30 feet. Start looking for these fish to move shallower and there is some fish already being taken on crankbaits in the shallows at



night. Muskies are being taken on large sucker minnows and bobbers on Big Detroit in 12 to 14 feet. Panfish are being caught on the weedlines of Severson Lake, Floyd Lake, Sour Lake, and Little Detroit Lake. Duck hunting reports have been pretty limited since there hasn't been a lot of people chasing them.

Quality Bait and Tackle (218) 844-2248

DULUTH AREA

Walleyes are hitting chubs at Island Lake in 10 to 12 feet and at Boulder Lake in eight to 10 feet. Salmon are moving into the rivers such as the Lester, Sucker, and mouth of the French River and providing steady action. A few crappies and sunfish are coming out of Fish Lake in eight feet. Grouse hunting is excellent and the leaves have really dropped this week so it should only get better. Duck hunting has been poor and 14 moose have been registered as of Tuesday morning.

Chalstrom's Bait (218) 726-0094

EAST-CENTRAL MINN

The local rivers continue to flow high making fishing opportunities on them pretty limited. Crappies are being caught on minnows at Blue Lake in 14 feet. Duck hunters reported a poor opening day, but Sunday was slightly better. Archery hunters continue to register a decent number of antlerless deer.

Tales and Trails Sport Shop
(763) 856-3985

EMILY AREA

Crappies have started hitting tubes and minnows in 12 to 15 feet on Lake Washburn. There's an evening walleye bite on Molten Lake in 15 to 18 feet with shiner minnows. Look for northern pike to be hitting spoons in six to eight feet on Lake Esquagamah and Wood's Bay on Roosevelt Lake is kicking out largemouth bass in eight to 10 feet. The duck opener went well, but it has been slow since then. With the leaves dropping, grouse hunting has started to improve.

Redding Sports and Spirits
(218) 763-2191

FARIBAULT AREA

Anglers fishing from shore and in boats along County Road 12 on Cannon Lake are catching walleyes on minnows. Look to Lake Mazaska for sunfish and crappies in 10 to 12 feet. Circle Lake is kicking out panfish, northern pike, and an occasional walleye in eight to 10 feet. Look to French Lake with bucktails for muskies and the duck season started very slow.

Nagel's Live Bait (507) 334-8341

GRAND MARAIS AREA

A few walleyes can be had with a jig and minnow in 50 feet at Lake Saganaga and Seagull Lake. Salmon and lake trout are being found at the mouths of the rivers such as the Cascade, Poplar, and Temperance. Crawlers continue to produce rainbow trout in 18 to 23 feet at Kimball Lake and in 22 to 25 feet at Leo Lake. Grouse hunting remains excellent, duck numbers are low, and 17 moose had been registered by Tuesday morning.

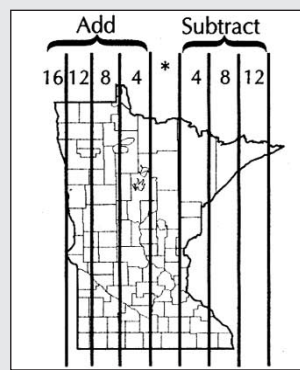
Buck's Hardware (218) 387-2280

HACKENSACK AREA

A slow-presented minnow and live-bait rig is turning walleyes at Woman Lake and Birch Lake in 12 feet or less. Pine Mountain

Sunrise/Sunset

| Date | Rise a.m. | Set p.m. |
|---------|-----------|----------|
| Oct. 08 | 7:19 | 6:41 |
| Oct. 09 | 7:21 | 6:40 |
| Oct. 10 | 7:22 | 6:38 |
| Oct. 11 | 7:23 | 6:36 |
| Oct. 12 | 7:25 | 6:34 |
| Oct. 13 | 7:26 | 6:32 |
| Oct. 14 | 7:27 | 6:31 |
| Oct. 15 | 7:28 | 6:29 |
| Oct. 16 | 7:30 | 6:27 |
| Oct. 17 | 7:31 | 6:25 |



Lake is kicking out a few walleyes in 10 to 14 feet as well. Panfish action is slow, but bass seem to be active on most lakes. A few ducks are being shot, but hunter numbers have been very limited.

Swanson's Bait and Tackle
(218) 675-6176

LAKE VERMILION

Walleyes are hitting a jig and minnow in 22 to 36 feet and muskie action has been spotty. Archery hunters have done well and grouse hunting continues to improve as the foliage drops. Most hunters seem pleasantly surprised with the number of grouse they're seeing.

Lake Vermilion Trading Company
(218) 666-6052
lakevermiliontradingco.com

MANKATO AREA

Walleyes can be had with a jig and minnow on the shoreline of Lake Hanska and in 10 to 14 feet at Madison Lake. A few walleyes and crappies can be had with minnows on Lake Washington in seven to 12 feet. The duck season started with poor results from nearly all hunting groups.

The Bobber Shop (507) 625-8228

ORTONVILLE AREA

The islands on the south end of Big Stone Lake have started kicking out bluegills in 10 to 12 feet. Look for perch on Big Stone in 12 to 14 feet in the Hartford Beach and Grapevine areas. The Minnesota River is producing walleyes and northern pike for shore anglers. There seems to be a few ducks around, but there hasn't been enough hunters out to move them.

Bud's Bait (320) 839-2480

PARK RAPIDS AREA

Look for walleyes on Fish Hook Lake to hit a jig and minnow in six to 12 feet of water. Potato Lake and Long Lake started giving up 'eyes in eight to 12 feet via minnows. Hit Long with large minnows for northern pike in six to 12 feet as well. Panfish reports are limited, but the duck season started OK for the guys that hunted – there wasn't a lot of people out and grouse hunters continue to do well.

Delaney's (218) 732-4281

Zink

(From Page 10)

ticides. Although older males start to lose some of their mane, they're still pretty impressive.

But, there are complications. It is not easy in the field to determine the age of a male lion, especially under hunting conditions where a quick decision might have to be made (and we are all aware of the phenomenon of field shrinkage). There are several ways to determine a male's age but none are fool-proof. For example, the spots on a male's nose can serve as an age indicator but it's not perfect. Dark markings on the back of the legs indicate a breeding-condition male. The mane itself is also not a perfect indicator of age. In general, the mane gets bigger and darker (in Tanzania) with age but there is variation.

Packer and colleagues have developed a guide for potential hunters for aging lions that is freely available by linking at www.outdoornews.com/links. However, although they state that it's a practical guide, it's over 40 pages long and requires a fair bit of study, and might not work easily as a field guide. Packer told me they're working on a short version that hunters can more easily study and take afield.

Lastly, although I have no real knowledge, I imagine that after paying \$50,000 for a lion hunt, there's some pressure to harvest one. If a really old male doesn't present itself, perhaps a younger one will do. Plus, if hunters heed Packer's warnings, it means that there will be fewer males to hunt, at least at first until a relatively large number of post-prime males are available.

Unlike whitetails that can keep the population going despite removal of older males, (because young bucks can be successful) the infanticidal nature of lion society means a more complicated management plan is needed to sustain the sport, one that will require buy-in by hunters and guides alike. But it seems clear from Packer's research, if they don't, the industry will probably self-destruct.

Editor's note: The author is a professor at the University of Minnesota's Department of Ecology, Evolution and Behavior, and the Breckenridge Chair in Ornithology at the Bell Museum of Natural History.