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Sneaky felids, smelly scents: a small scale survey for attracting cats

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For wildlife biologists, studying rare or elusive species has always been a challenge. Many wild felids are declining in numberss and geographic ranges worldwide (Long et al. 2008; Ripple et al. 2014). Owing to their rarity, elusive lifestyle and cunning, felids require sophisticated techniques to study (Boitani & Powell 2012), and diverse and innovative methods can be found among the various non-invasive techniques tested. Hair collection is one among many useful indirect methods.

Controlled hair-trap pilot studies in animal enclosures usually have been reported as successful (Weaver et al. 2005, Heurich et al. 2012, Portella et al. 2013). but when this monitoring technique has been tested in natural environments, results were less satisfactory (Downey 2005, Comer et al. 2011, Portella et al. 2013). Several lures and attractants have been tested over the years. Some of them, including commercial scents, worked (Ruell & Crooks 2007, Weaver et al. 2005); but others, such as cinnamon, vanilla, or bobcat (*Lynx rufus)* urine were less effective (Portella et al. 2013; Comer et al. 2011). The most-used scent lures, catnip and valerian, are also the most inconsistent attractants. In Sicily, researchers did not detect a single wildcat (*Felis sylvestris*) with valerian (Anile et al. 2012), but German studies experienced huge success using the same attractant (Steyer et al. 2013). Similarly, catnip, which was one of the first lures used to attract felids, (McDaniel et al. 2000) provided few detections (Downey 2005; García-Alaníz et al. 2010). The above contradictory results led us to conduct our own small-scale study of the effectiveness of different lures.

Figure 1. Stone marten (Martesfoina) in the garden of Institute for Wildlife Conservation where dried catnip was scattered.

We highly recommend small-scale pilot studies such as this one before expending funds and effort on large-scale projects in the wild.

Material and methods

Our test started with dried catnip and one trail camera (Ltl Acorn 5210a) placed in the back garden of the Institute for Wildlife Conservation (Gödöllő, Hungary) during February, 2014. We also tested wire brush rub pads with Hagopur Fox commercial scent, salmon oil, valerian tincture, and dried catnip + liquid catnip. We placed 4 brushes in a row two meters apart and poured 4 ml of each lure on a piece of polar blanket placed behind the wire brushes. We placed a 5th wire brush with catnip 150 meters from the other four hair traps. We refreshed scent baits once each week for four weeks.

Results

The camera with dried catnip recorded one stone marten (*Martes foina*) and two domestic cats (*Felis catus*). In the first two weeks, two rubbing events by domestic cats were also observed on the hair-trap baited with valerian tincture. No other rub pads provided hits. Both of these cats rubbed the traps within one-half day after lure refreshment. For an additional two weeks, we used liquid catnip, valerian tincture and a mixture of catnip and valerian. After the 3rd and 4th scent bait refreshments, two hair samples were collected on the wire brush with valerian tincture. A single rub by a domestic cat occurred at the catnip-baited isolated brush.

We collected four hair samples using valerian tincture as a lure, while catnip collected three. Other lures did not elicit rub responses. In an earlier literature review (Patkó et al. 2014) we concluded that some hair collecting surveys work better on some species than on others. In case of bears, for example, hair trap studies are usually a huge success (Mowat & Strobeck 2000; Triant et al. 2004), but in felids, failure can often occur. In successful studies, short sampling periods (Ruell & Crooks 2007; Schmidt &Kowalcyk 2006), with large amounts of attractant worked best (Schmidt & Kowalcyk 2006; Ausband et al. 2011). Our test suggested the same results, with all responses occurring shortly after lure refreshment. Monitoring with hair traps is a new and developing technique, and similar controlled tests of a variety of scents and refreshment periods are needed. Based on our work we recommend refreshing every 4-7 days with >4-5 ml of lure. We highly recommend small-scale pilot studies such as this one before expending funds and effort on large-scale projects in the wild.

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Literature Cited in this Issue

Anile, S. et al. 2012. A non-invasive monitoring on European wildcat (*Felis silvestris silvestris* Schreber, 1777) in Sicily using hair trapping and camera trapping: does it work? Hystrix 23:45–50.

Ausband, D. E. et al. 2011. Hair of the dog: Obtaining samples from coyotes and wolves noninvasively. Wildlife Society Bulletin 35:105–111

Bauer H. and S. Van Der Merwe. 2004. Inventory of free-ranging lions (*Panthera leo*) in Africa. Oryx 38: 26–31.

Bauer, H. et al. 2012. *Panthera leo*. In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.2. www.iucnredlist.org. Downloaded on 21 May 2014.

Beddard, F. E. 1985. Animal coloration: Colour and markings of animals 2nd Ed. Swan Sonnenschein: London.

Bertola L. D. et al. 2011. Genetic diversity, evolutionary history and implications for conservation of the lion (*Panthera leo*) in West and Central Africa. J. Biogeogr 38(7): 1356–1367.

Boitani, L. and R. A. Powell. 2012. Carnivore ecology and conservation: a handbook of techniques. Oxford University Press, Oxford; New York, 490 pp.

Borchers, D. L. and M. G. Efford. 2008. Spatially explicit maximum likelihood methods for capture-recapture studies. Biometrics, 64(2):377–85.

Chardonnet, P. 2002. Conservation of the African lion: contribution to a status survey. International Foundation for the Conservation of Wildlife. Metairie: France Conservation Force. 27 p.

Comer, C. E. et al. 2011. Bobcats exhibit low detection rates at hair collection stations in east Texas. Wildlife Biology in Practice 7:116-122.

Cott, H.B. 1940. Adaptative Coloration in Mammals. London: Methuen.

Downey, P. J. 2005. Hair-snare survey to assess distribution of margay (*Leopardus wiedii*) inhabiting El Cielo Biosphere Reserve, Tamaulipas, Mexico. Oklahoma State University, M. S. thesis, 42 pp.

Efford, M. 2004. Density estimation in live-trapping studies. Oikos 106:598-610.

Eizirik, E., et al. 2003. Molecular genetics and evolution of melanism in the cat family. Current Biology 13, 448-453.

Fort, J. L. et al. 2014. First camera survey of wild felids in Cerro Hoya National Park, Panamá. Cat News 60:36-37.

Garcia-Alaniz, N. et al. 2010. Hair-snares: a non-invasive method for monitoring felid populations in the Selva Lacandona, Mexico. Tropical Conservation Science 3:403–411.

Geertsema, A. A. 1985. Aspects of the ecology of the serval *Leptailurus serval* in the Ngorongoro Crater, Tanzania. Netherlands journal of zoology 35(4): 527-610.

Gogler, C.W.L. 1833. *Das Abändern der Vögel durch Einfluss des Klimas* [The evolution of birds through the impact of climate]. Breslau: August Schulz.

Henschel P,. et al. 2014. The lion in West Africa is critically endangered. PloS ONE, 9(1): e83500.

Heurich, M. et al. 2012. Comparison of the effectivity of different snare types for collecting and retaining hair from Eurasian lynx (*Lynx lynx*). European Journal of Wildlife Research 58:579–587.

IUCN. 2013. Red List of Threatened Species. Version 2014.1. Available: www.iucnredlist.org. Accessed 20 December 2013.

Long. R.A., et al. 2012. Noninvasive Survey Methods for Carnivores. Island Press, 385 pp.

Kawanishi, K. et al. 2010. Near fixation of melanism in leopards of the Malay Peninsula. Journal of Zoology 282(3), 201-206.

Majerus, M.E.N. 1998. Melanism – Evolution in action. Oxford University Press.

McDaniel, G. W. et al. 2000. Efficacy of lures and hair snares to detect lynx. Wildlife Society Bulletin 28:119–123.

Mowat, G. and C. Strobeck. 2000. Estimating population size of grizzly bears using hair capture, DNA profiling, and mark-recapture analysis. The Journal of Wildlife Management 64:183 -193.

Nowell K. and P. Jackson. 1996. Wild cats: status survey and action plan. Gland: IUCN. 382 p.

Patkó, L. et al. 2014. Non-invasive surveys in conservation biology. Abstact volume, SCCS Conference, Cambridge, 56 pp.

Portella, T. P. et al. 2013. Assessing the efficacy of hair snares as a method for non invasive sampling of Neotropical felids. Zoologia (Curitiba 30:49–54.

Poulton, E.B. 1890. The Colours of Animals, their meaning and use, especially considered in the case of insects. London: Kegan Paul, Trench & Trübner.

Ray J. C. et al. 2005. Setting conservation and research priorities for larger African carnivores (Vol. 24). New York: Wildlife Conservation Society.

Renaud, P. C. et al. 2006. Inventaire aérien et terrestre de la faune et relevé des pressions au Parc National du NiokoloKoba. Plan d'Urgence PNNK. Rapport A. African Park Foundation/ Ministere de l'Environnement et de la Protection de la Nature, Senegal.

Rexstad, E. and K.P. Burnham. 1991. User's Guide for Interactive Program CAPTURE. Colorado Cooperative Fish & Wildlife Research Unit, Colorado State University, Fort Collins, Colorado.

Riggio, J. et al. 2013. The size of savannah Africa: a lion's (*Panthera leo*) view. Biodiversity and Conservation, 22(1), 17-35.

Ripple, W. J. et al. 2014. Status and ecological effects of the world's largest carnivores. Science 343:1241484–1241484.

Royle J. A. 2013. Spatial capture-recapture. San Diego: Academic Press. 612 p.

Ruell, E. W. and K. R. Crooks. 2007. Evaluation of noninvasive genetic sampling methods for felid and canid populations. Journal of Wildlife Management 71:1690–1694.

Schmidt, K. and R. Kowalczyk. 2006. Using scent-marking stations to collect hair samples to monitor Eurasian lynx populations. Wildlife Society Bulletin 34:462–466.

Schneider, A. et al. 2012. How the leopard hides its spots: *ASIP* mutations and melanism in wild cats. *PlosOne* 7, e50386.

Sillero-Zubiri C. et al. 1997. On the distribution and abundance of some key mammal species of the NiokoloBadiar. Rapport de recherché no. 12. Projet Niokolo-Badiar. 27 p.

Sogbohoussou; E. 2011. Lions of West Africa: ecology of lion (*Panthera leo* Linnaeus) populations and human-lion conflicts in Pendjari Biosphere Reserve, North Benin. Leiden University.

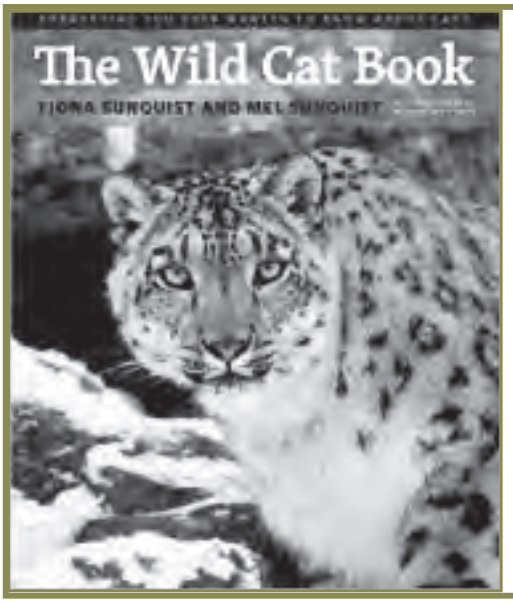
Steyer, K. et al. 2013. Hair trapping with valerian-treated lure sticks as a tool for genetic wildcat monitoring in low-density habitats. European Journal of Wildlife Research 59:39–46.

Triant, D. A. et al. 2004. Abundance, genetic diversity and conservation of Louisiana black bears (*Ursus americanus luteolus*) as detected through non invasive sampling. Conservation Genetics 5:647–659.

Uphyrkina, O. 2001. Phylogenetics, genome diversity and origin of modern leopard, *Panthera pardus*. Molecular Ecology, 10(11), 2617–33. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11883877

Weaver, J. L. et al. 2005. Use of scented hair snares to detect ocelots. Wildlife Society Bulletin 33:1384–1391.

White, G. and K. Burnham 1999. Program mark: survival estimation from populations of marked animals. Bird Study, 46, 120–139.



Fiona and Mel Sunquist have just published a new book through University of Chicago Press. The Sunquists have published other books on felids, notably Tiger Moon: Tracking the Great Cats of Nepal and Wild Cats of the World. Although the book is targeted to a general audience, it provides easily accessed information and a strong bibliography for the more serious reader. Alan Rabinowitz remarks that it is "A beautifully illustrated and eminently readable book [and] is the best primer out there to delve into the evolution, survival, and status of the world's wild cats." Jim Sanderson comments that the book "is a pleasure to read. Enhanced with geographic distribution maps and many photographs, The Wild Cat Book is a comprehensive, interesting, enjoyable, and current review of all that we know about members of the great family of cats, the Felidae."