

**If drink coffee at the coffee-shop is the answer, what is the question? Some comments on the use of the sprainting index to monitor otters**

Imagine you want to learn about population size and people's favorite neighborhoods of a city. Then you start to monitor several coffee-shops and register the proportion of people going inside the shop among those walking by the door, and the relationship between the number of visitors and the number of consumed coffees. If you ignore the number and distribution of coffee-shops at the town, the proportion of people that drink coffee at home and not at coffee-shops, the average number of coffees drunk by each client, the potential individual preferences for specific coffee-shops, etc, what can you learn about population size and the use by people of different quarters? Almost nothing, we fear. We suggest that something similar occurs in the case of the monitoring of sprainting sites by otters recently proposed in Ecological Indicators (Guter et al., 2008).

As Guter et al. (2008) explain, Eurasian otters (*Lutra lutra*) are largely nocturnal, solitary and elusive, but deposit unmistakable faeces (called spraints) into conspicuous, predictable sites (latrines or sprainting sites), which can be used for long time and have a purpose of scent communication (Hutchings and White, 2000). Otter's spraints are easily detected, so the theoretical possibility exists of using them to indirectly assess otter distribution, habitat use and even population numbers (Mason and Macdonald, 1986). The finding of a spraint is an incontrovertible proof of the presence of at least one individual otter; so the minimum range occupied, at least temporarily, by the species can be estimated from spraint searching. This is the foundation of the field survey methodology usually employed in Europe (Reuther et al., 2000; Chanin, 2003). However, the use of sprainting indexes to estimate otter habitat preference or abundance is a more controversial issue, and has been a frequent source of debate over the last decades (Kruuk et al., 1986; Mason and Macdonald, 1987; Kruuk and Conroy, 1987). The main problems arise due to the uncertain relationship between spraint numbers and otter habitat use or population size. As Kruuk (1995) specifically addressed, the use of spraints to monitor otter abundance or habitat use is based "on the untested assumption (...) that if there are more spraints along one section of coast or river in comparison with another, then otters will have spent more time there". Although we acknowledge the effort made by Guter et al. (2008), their findings do not help to solve this question.

According to their words, Guter et al. (2008) addressed the problem of the validity of spraints as an index of otter activity. However, they did not specify to what kind of activity they were referring to. Indeed, otter activity includes feeding, travelling, grooming, resting etc, but Guter et al. (2008) reduced their concept of "activity" to visits to sprainting sites. Obviously, activity at sprainting sites was related to the number of spraints (although quite surprisingly this relationship was rather weak,  $R^2 = 0.14$ , and

sometimes otters visited latrines up to six times during the night without leaving any spraint). But even this says little about the number of otters involved, as each individual produce tens of spraints daily (Mason and Macdonald, 1986), so a unique otter could be responsible for all visits. Furthermore, the authors stated that areas visited very often by the otters could be marked rarely or never, and certainly this must be happening with some feeding and resting places, by instance. However, Guter et al. (2008) could not detect this type of activity, as they only monitored "permanent latrines". What kind of activity can be expected in otter's sprainting sites? Obviously, deposit new spraints or scent old ones. In short, the main finding of the paper is that the number of spraints in a latrine is associated with the use of this latrine by otters. Unfortunately, this conclusion does not add anything to the controversy about the use of spraints to monitor otter populations.

We think, as Guter et al. (2008), that at a rather large spatial scale, the number of spraints in a habitat stretch could be indicative of the otter density and the use they make of such stretch (Hutchings and White, 2000; Chanin, 2003). In fact, a recent molecular genetic research found a positive correlation between the relative otter spraint density and the number of otter genotypes in the area (Lanszki et al., 2008). However, the numbers of faeces in isolated latrines, as Guter et al. (2008) monitored, can be not that useful. For example, since otters select conspicuous sites to leave spraints, the availability of such sites could influence the number of spraints that can be found in them. Thereby, most otter monitoring programs and particular studies try to count the total number of spraints found along habitat unities (coast, lagoons or stream stretches) and not in particular sprainting sites (e.g. Clavero et al., 2006).

This situation closely resembles the one of the system used to monitor European rabbit (*Oryctolagus cuniculus*) populations. As otters, rabbits frequently deposit large number of pellets (sometimes >1000) that serve a social function in latrines but, at the same time, they also scatter individual faecal pellets while they feed. Different methods, including the counts of rabbits, latrines, pellets, warrens, etc, have been traditionally used to survey their populations, and comparisons made by researchers show us that most of them are highly correlated (Palomares, 2001). Among all these methods, latrine counts are one of the most commonly used (Calvete et al., 2006). From the best of our knowledge, the number of pellets in each latrine (estimated as its diameter) has been only used in one study, and it was uniquely used to correct the latrine counts (see for details Calvete et al., 2004). However, the usefulness of this index was not validated before the study, and has not been used again, as it is assumed that rabbit numbers can be associated with the number of latrines deposited by them but difficulty on the number of pellets existing in each latrine. Alternatively, counting the number of pellets within plots, avoiding counts on or near a latrine, has been also frequently used to survey rabbit populations (Palomares, 2001).

An ecological indicator should give additional information than the obvious. Coming back to our beginning, to find a relationship between the visits to latrines and the number of faeces would be similar to discover that the number of consumed coffees is correlated with the number of visitors to one coffee-shop. What does it mean for the population number or the habitat use?

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