Why didn't we just ask?

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Great ape conservationists widely acknowledge that accurate population estimates are vitally important to assess a species' vulnerability to extinction, to monitor population status, and to inform decisions about how best to allocate limited conservation funds. In recognition of the fact that the rare and cryptic nature of orangutans makes direct surveys generally unfeasible and inaccurate, systematic counts along transects of the resting platforms, or "nests", that orangutans build have been widely used as proxies for population density. The results of these orangutan nest surveys have formed the basis of conservation assessments and management recommendations.

In the conversion of nest density to orangutan population density, nest decay rate is a crucial parameter, inversely proportional to population density. Unfortunately, nest decay rates are highly variable in space and time, with nests decaying in as few as 85 days or lasting for over 800 days. For example, nest decay rates at a site in East Kalimantan are inexplicably more than twice as slow as at other sites in Borneo. Similarly, our preliminary analyses indicate that nests decay very rapidly in Acacia plantations, complicating our attempts to understand the unusually high nest densities that we have observed in this seemingly marginal orangutan habitat. At present, we simply do not understand what causes that high temporal and spatial variation in nest decay.

Our lack of understanding of the factors underlying variation in nest decay rates is unsettling, and is not widely acknowledged by our fellow orangutan conservation practitioners. In 2007 alone, we know of at least seven orangutan survey programs that were conducted without determining local nest decay rates. It is understandable that survey teams are tempted to use such shortcuts, as gathering accurate data on site-specific nest decay rates takes a minimum of six months. However, succumbing to this temptation is unwise and potentially damaging to conservation efforts. At best, it will result in orangutan density estimates with wide confidence intervals, hampering our ability to identify or monitor priority populations. At worst, ignoring uncertainty in nest decay rates may result in estimates that are worse than useless, wasting limited funds or diverting investments to sites or particular strategies which do not maximize conservation benefits. Until we have a better understanding of the factors determining nest decay rates, continued, uncritical application of nest transects as a rapid survey technique is inadvisable.

While we stress that use of non site-specific nest decay rates is unwise, we recognize the need for rapid survey techniques that identify key orangutan populations, provide a reasonable estimate of their size, and identify populations that are in danger of local extirpation. Weighing up cost and benefits of different survey approaches is very important.

The time and labour input required to properly conduct nest surveys for orangutans has implications for the scale of which such surveys can be done. In Borneo alone there are some 300 distinct orangutan populations divided over a total distribution range that measured 130,919 km^2 in 2004. If we optimistically assume that a particular transect system effectively monitors population fluctuations in some 100 km^2, a complete understanding of orangutan population trends would require more than 1,000 transect systems. Each transect requires monthly repeat surveys by 2-4 survey staff, at a cost of ca. US$ 1,500/month. An annual survey budget of some US$ 50,000,000 would be required to sustain such an effort. This is about the same as the total annual conservation investment in Indonesia, i.e. entirely unrealistic. The question is whether there are realistic alternatives.

TNC are presently developing and testing a new orangutan census technique in East Kalimantan. It uses structured interview-based approaches, similar to rural surveys employed by the World Health Organization. In a set of 35 questions, randomly selected interviewees in villages, logging camps, and plantation areas are asked about the work and frequency of forest travel. They are also asked about when and where they have last seen an orangutan. A combination of additional questions establishes the reliability of time-related questions and the interviewees' knowledge of different primate species. Preliminary tests in areas where orangutan densities are well known, indicate that the interview surveys provide quantitative information about orangutan densities with relatively small standard errors. Integrated methods such as these are especially useful because the interviews provide multi-dimensional information, encompassing not only the density of the species in question but other information that is equally important to conserving orangutans, such as the intensity of local threats such as hunting, habitat conversion, and human attitudes towards orangutans. This method appears very suitable for resurveying all of Kalimantan's orangutan habitats, a commitment that TNC has made to the Indonesian government.

We do not mean to imply that orangutan nest surveys should be abandoned completely; they are valuable in a limited set of circumstances. Specifically, they may be useful as a means of assessing or monitoring population size in well-delineated areas where site-specific nest decay rates are available or where nest decay can be monitored concurrently. However, we feel that the recent pervasive application of this technique in the absence of site-specific nest decay rates is not the most accurate or cost effective way of assessing orangutan population status. Given the urgency of the threats to wild orangutan populations, the need for new methods is acute. We urge our orangutan survey colleagues to join us in acknowledging the limitations of nest surveys, and to help us seek additional methods to assess orangutan population size and trends. We similarly urge our African counterparts who are using similar nest-based methods for assessing population densities of gorillas, bonobos, and chimpanzees, to carefully assess the temporal and spatial variation in nest decay rates and evaluate the potential errors that have been made in past surveys.