New method for ecological risk assessments of alien species

June 28 2013

A new semi-quantitative method that enables researchers and others to assess the environmental impacts posed by alien species is now in use in Norway. While the method is tailored to the Norwegian environment, it can easily be adapted to other countries, and fills an international need for a quantifiable, uniform approach to classifying and assessing alien species. The publication that details the potential impacts of alien species in Norway has also just been released in English.

"This provides an objective classification of these species' potential impact on the Norwegian environment. We relied on much of the same principles as were used in the preparation of 'The 2010 Norwegian Red List for Species'," said Professor Bernt-Erik Sæther at the Norwegian University of Science and Technology's Centre for Biodiversity Dynamics (CBD).

Saether and his colleague Dr. Hanno Sandvik developed the approach, which was then fine-tuned in cooperation with a coalition of researchers from different institutions in Norway and staff from the Norwegian Biodiversity Information Centre (NBIC).

Sæther notes that there is no shared international method for assessing the impacts of alien species in the environment. In fact, the EU has just sent out a call for tenders to develop a "Framework for the identification of invasive alien species of EU concern".

"We hope that EU finds our work interesting. We have established a

sound scientific methodology, and results have been well received by users," says Ivar Myklebust, NBIC Director.

Rating risks

The method classifies species according to their ability to spread in, and their effects on, the Norwegian environment. This information allows researchers to plot the risks posed by each species on two axes, one of which shows the species' likelihood of establishment, spread and dispersal, while the other shows the degree to which the alien species will interact with [native species](#) or transform habitats.

Based on the combined values of the two axes, the alien species can be assigned to one of five impact categories:
• Species with severe impact (SE) are actually or potentially ecologically harmful species and have the potential to become established across large areas.
• Species with high impact (HI) have either a restricted/moderate ability to spread, but cause at least a medium ecological effect, or alternatively only a minor ecological effect but have a high invasion potential.
• Potentially high impact (PH) species have either high ecological effects combined with a low invasion potential, or a high invasion potential without any known ecological effect.
• Low impact (LO) species have no substantial invasion potential and ecological effect.
• Species with no known impact (NK) are not known to have spread and have no known ecological effects.

The criteria are applicable to all species regardless of taxonomic position.

Results and black-listed species

Norway's first official foray into evaluating the impacts posed by alien species was with the publication of the "2007 Norwegian Black List" by the Norwegian Biodiversity Information Centre. Only 217 species were assessed in this first effort.

More information: *Biodiversity and Conservation* 22: 37-62.

Provided by Norwegian University of Science and Technology