"Ecological compensation is piloted in large infrastructure projects."

FINNISH GOVERNMENT PROGRAMME 2019

Ecological compensations are worth taking into use

Natural diversity is declining at an alarming rate. Consequently, in addition to traditional nature protection, ecological compensation needs to be taken into use in Finland. Compensation means that local damage inflicted by humans on nature is offset by enhancing natural diversity elsewhere.

In the planning stage of an activity that damages nature it is necessary to find the working method that causes the least harm. If it is not possible to completely avoid damage to nature, the remaining ecological harm should primarily be offset and the costs should be paid for by the one who causes the harm. The costs of the compensation will encourage the source of the harm to look for solutions that minimize the ecological harm.

Compensation rules that define the rights and responsibilities of both the one causing ecological damage and the offset producer should be created through legislation. The compensation practices must be transparent.
A procedure is needed for comparing the harm inflicted on nature and the compensatory measure. Also needed is information on how the offsets are registered and secured in perpetuity and on what kinds of agreements are required by the implementation of the compensation.

Offsets should be first produced in habitats in which knowledge and skills needed for their restoration already exist, such as meadows or drained swamps. Use of ecological compensation could improve the state of fish stocks and biodiversity in rivers and streams. For example, harm caused by a large power plant in one water area could be offset by restoring natural water flow in another waterway.

What are ecological compensations?

Ecological compensation, also called biodiversity offsetting, is a procedure in which biodiversity loss caused by construction or industry, for example, is compensated by producing biodiversity gain somewhere else[1,2,3]. Biodiversity gain can be achieved, for example, by managing traditional agricultural environments, restoring drained swamps, or increasing the amount of decaying wood in forests.

Compensation is implemented by restoring, managing, or protecting habitats. The principle is that compensation is paid by the one who causes the damage, such as a company, municipality, or the state.

Diversity in nature is in a continuing global decline[4,5]. Among the greatest threats to diversity are changes in the use of land[6]. Ecological compensation could help support a transition to a more sustainable land use.

The cost can be added to the prices

Interest in ecological compensation has increased especially among companies whose operations alter the use of land and which need environmental permits to operate[7].

Compensation can be an incentive for operators to avoid causing harm in the first place, as compensation brings monetary expenditure. Those causing the biodiversity loss can pass the costs of compensation onto the prices of their products and services. In this way market forces can be made to favour activities that are less harmful to nature.

Compensation offers business opportunities for landowners: producing biodiversity offsets can become a new source of income.

Using offsets to support protected areas

The design of ecological compensation must be based on knowledge of the extent of the threat facing the habitat, the rarity of the habitat, as well as the skills required and the methods involved in its restoration[8].

Some habitats, such as palsa mires or serpentine cliffs, are rare, and there are no means for restoring them[8]. It is not possible to offset their deterioration through compensation.

The damage caused to a more common habitat can potentially be compensated by improving a rarer one[2,8]. For example, harm to an ordinary dry heath forest can be compensated by managing or restoring a rarer habitat such as a grove or a ridge forest[8]. Even the common habitat should not be weakened if it is in a natural state, is significant in terms of its species composition, or if its location is important, for example, as a part of a network of nature areas[8].

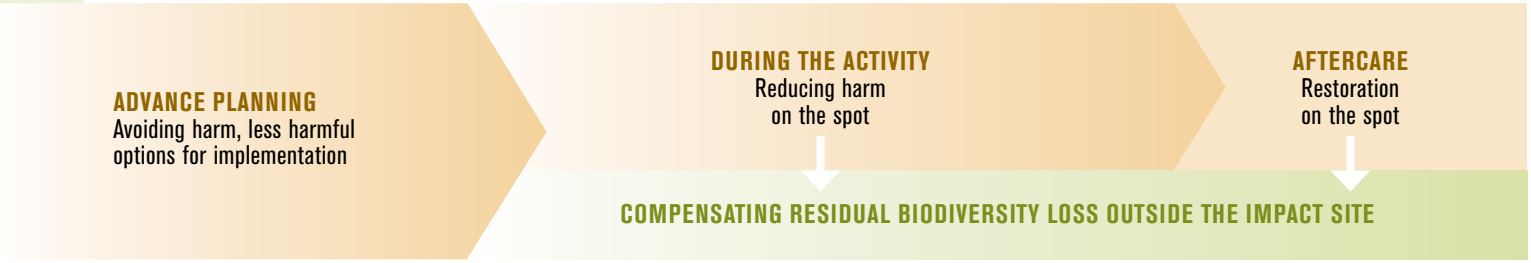
The location and ecological quality of the offset and damage areas affect their ability to maintain diversity, thus affecting the success of compensation. The offset areas should be located in a way that supports the existing network of protected areas. In compensation design it is worthwhile to utilise spatial data and planning tools. For example, the Zonation software[9,10], which was originally developed for spatial prioritization of nature conservation areas, could be used in finding suitable offset sites.

Reviving nature in flowing waters

Ecological compensation could support the restoration of entire rivers or streams and enhance the ecological state of built waterways[11].

AVOIDING AND REDUCING BIODIVERSITY LOSS AT THE IMPACT SITE IS ALWAYS THE BEST OPTION

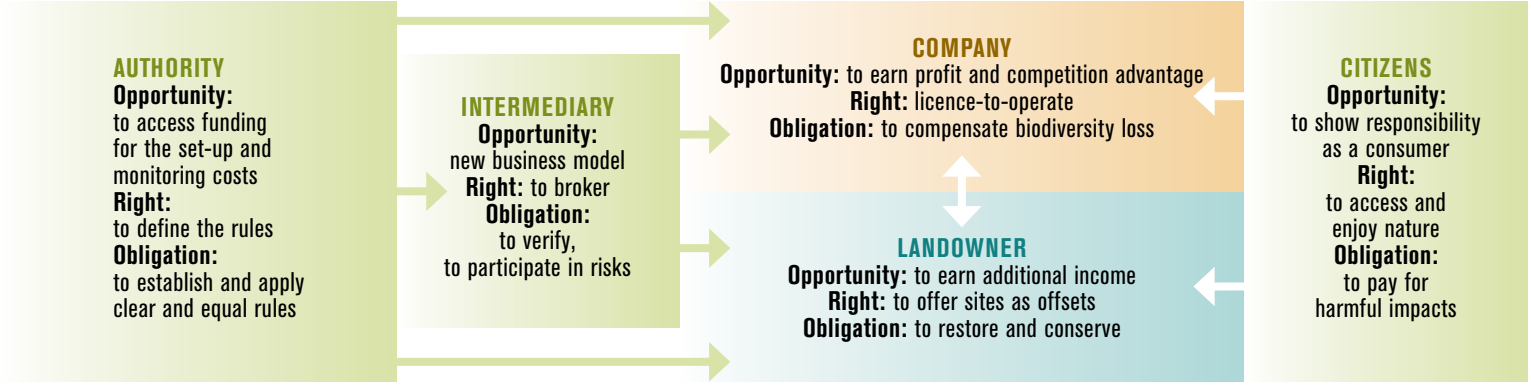
If harm inflicted on nature by human activity cannot be avoided or alleviated on the spot, ecological compensation is worth taking into use.



ADAPTED FROM SUVANTOLA ET AL. 2018[17]

ROLES OF THE DIFFERENT ACTORS OF COMPENSATION PROCEDURE

Legislation should be used to consolidate the roles of the various parties involved in compensation to render the activity as transparent as possible. A company needing compensation and a landowner offering compensation can be linked by an intermediary – for instance, a non-profit organisation or company.



ADAPTED FROM THE SOURCE SIMILÄ ET AL. 2017[16], PRIMMER ET AL. 2019[7]

The restoration of natural flows, the construction of new habitats, and other types of restoration measures would boost the fish stocks of flowing waters and increase natural diversity.

Finland has 220 hydroelectric power plants. The 60 largest hydroelectric plants produce more than 90 percent of all hydroelectric power in Finland. To the extent that the harm caused by these power plants cannot be reduced on the spot, the restoration of a natural flow in other waterways, for example by dismantling dams that are less important for the production of hydroelectric power, might be a suitable means of ecological compensation. This would require legislative changes.

Shared benefits for nature and the climate

Ecological compensation should also be used to slow down climate change whenever possible. For example, leaving old-growth forests standing can be a compensatory offset, benefiting both natural diversity and the climate. Ageing forests offer a home for many forest species whose status has declined in Finland[4], while at the same time old growth forests store a relatively large amount of carbon, and can also serve as a carbon sink for an extended period[12].

On the other hand, when forests are planted with the aim of mitigating climate change, it is important to avoid harm to threatened open, or partly open habitats, such as meadows or sunny slopes of ridges, which have value with respect to biodiversity.

Compensating emissions of nutrients into waterways is also being examined in Finland[13,14]. Reducing nutrient emissions can be a prerequisite for the success of ecological compensation in underwater habitats along the Finnish coast[15].

Compensation can have real impact only if the additionality principle is followed[1,3]. The additionality principle means that compensation is not used to replace existing policies, steering methods or good practices for securing natural diversity.

The challenge for both ecological compensation and carbon or nutrient compensation is to ensure the success, adequacy, and permanence of the compensations.

Agreements and legislation

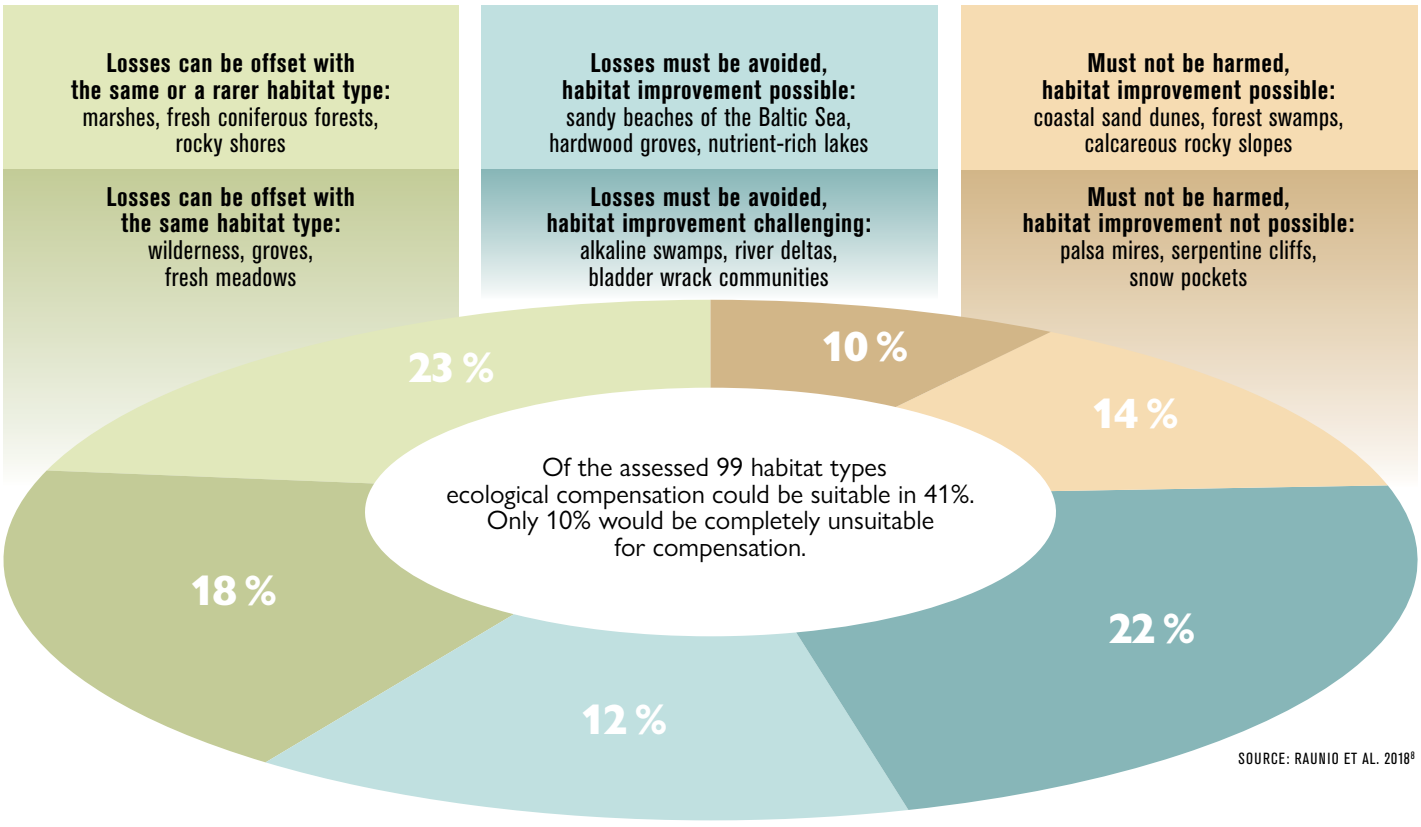
Ecological compensation was added to the array of nature protection methods at the meeting of the parties to the UN Convention on Biological Diversity (CBD) in Nagoya in 2010. The aim is to involve the private sector in the funding of nature conservation. Compensation is also mentioned in the biodiversity strategy of the EU and in the Finnish national strategy and action plan for the conservation and sustainable use of biodiversity 2013–2020.

EU legislation requires compensating for measures that weaken areas that are part of the Natura 2000 network[16,17]. For example, compensation for a Natura area has been implemented in the Botniabanan railway project in Sweden[18]. Ecological compensation is being implemented and developed in different parts of Europe[19].

The general principles of ecological compensation[2] and the legislative framework[20,21,16,17] as well as the potential of the compensation market[22] have been studied in Finland. In addition, the suitability of different habitat types to ecological compensation[8] has been assessed, as has the applicability of ecological compensation for the Finnish coast and sea areas[15].

THE SUITABILITY OF DIFFERENT HABITAT TYPES FOR ECOLOGICAL COMPENSATION IN FINLAND

The suitability of habitat types for ecological compensation in Finland was estimated based on both the threat status and rarity of the habitat and availability and effectiveness of restoration methods. The best habitats types for producing compensation offsets are primarily the ones for which skills and knowledge for rehabilitation and restoration already exist. Suitable areas for producing offsets are, for example, grasslands, meadows, and wooded pastures. Each compensation project needs careful and case-specific planning and consideration.



SOURCE: RAUNIO ET AL. 2018[8]

A new way to secure biodiversity

Securing the diversity of nature requires new methods in addition to those of traditional nature conservation. Ecological compensation is useful in situations in which harm inflicted on nature by humans cannot be completely avoided.

Evaluating the need for compensation sheds light on the harm inflicted on nature by human activity. Because compensation imposes costs on the perpetrator of the harm, it can also steer the use of natural resources in a direction that preserves nature. The compensation offsets must be targeted toward restoring and managing damaged habitats and protecting threatened habitats.

Whenever possible, ecological compensation should be implemented in such a manner that the measures will also mitigate climate change and reduce the eutrophication of waterways.

The compensations alone will not stop the biodiversity loss. There are habitats and ecosystems whose losses cannot be offset by compensation. However, ecological compensations would support a transition toward more sustainable practices in utilisation of natural resources and land use.

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Further information:

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