



## Otters' conservation reveals need to adapt to climate change

**There is a need** for conservation strategies to consider the changing factors that threaten endangered species, such as climate change. Focusing on the European otter, new research has indicated that climate change will change this important freshwater species' distribution, which may mean that existing conservation areas no longer offer protection.

**Many different conservation measures** exist throughout Europe, but protected areas (whether at national or multinational level) are still predominant. However, factors such as climate change can change the distribution of species, and existing protection areas should take this into account if they are to continue fulfilling their conservation function. Ideally, they should be networked according to species distribution under current and future climate conditions.

The study, supported by the EU ECOCHANGE<sup>1</sup> project, assessed climate change threats to the European otter, a flagship species that is a good indicator of the status of freshwater ecosystems. Using survey data on the occurrence of the otter across Europe, the study predicted the impact of two future climate scenarios on their distribution. The well-known IPCC climate scenarios were A2, which predicts a temperature rise of 2-5.4°C by 2080, and B2, which predicts a temperature rise of 1.4-3.8°C. Thirteen environmental factors which could also influence distribution were considered that were related to water, forest cover, food and human disturbances.

The projections suggest that climate change may significantly alter the otter's future distribution in Europe. Under both scenarios there will be an increase in areas that are considered highly suitable for otters in central Europe, which could lead to a potential reconnection between eastern and western distributions of otter.

However, the increase in suitability in central Europe is quite localised and appears to be mainly located in France. Moreover, the northern part of the eastern region of central Europe, which could be a site of connectivity, actually shows a decrease in suitability. This suggests that reconnection between the eastern and western areas of central Europe would not be as easy as first thought. For the Mediterranean, there will be a decrease in suitability in the Iberian peninsula, probably linked to the increasing occurrence of droughts. However, the increase in suitable areas in central Italy and southern France could provide stepping stones for expanding the otter's distribution towards the north.

The study identified priority areas for otter conservation by overlapping current and future distributions, i.e. areas that protect otters now and would protect them in times to come. When compared to existing networks of conservation areas, these priority areas are not well protected. In particular, the study found that more protection is needed in southern Italy and the Iberian peninsula, to account for the future needs of the species.

There are some shortcomings of the model, for example, it only considers changes in temperature and precipitation and does not include extreme events, such as floods and droughts, or the effect of water warming on eutrophication. Neither does it include availability of food supply and land use issues. Nevertheless, the model provides a method for integrating climate change effects into the design of protected area networks and could be applied to many species and ecosystems. This in turn could help managers to prioritise conservation programmes for the species.

1. ECOCHANGE was supported by the European Commission under the Sixth Framework Programme. See: [www.ecochange-project.eu](http://www.ecochange-project.eu)

**Source:** Cianfrani, C., Le Lay, G., Maiorano, L. *et al.* (2011) Adapting global conservation strategies to climate change at the European scale: The otter as a flagship species. *Biological Conservation*. 144: 2068-2080.

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