One-Two Act before it is too late. Biodiversity is in a bad state. What can research and/or politics do to improve it? Silva Semadeni, a member of the Swiss National Council, and biologist Niklaus Zimmermann discuss topics ranging from the value of nature, land-use changes and the Enlightenment. Their conclusion: we know enough to act now!

You are committed to biodiversity. How did that come about?

S: As a child, I spent every summer on the alp. My grandfather was a teacher and farmer, as well as a great nature lover. He introduced me to fire lilies and edelweiss, and taught me how to observe nature. This has stayed with me, and explains why I am a conservationist.

N: My mother was interested in plants, and we went hiking a lot. At high school I had a very good biology teacher who was able to nourish our wonder at the ‘miracle’ of nature.

In everyday life do you notice that the state of biodiversity is deteriorating?

S: Yes, definitely! We used to observe red-backed shrikes, frogs and tadpoles on the alp. Today I don’t see them any more. And everywhere in the country new buildings are going up where natural open spaces used to be.

N: I find that difficult, many things happen slowly and secretly. But a few years ago I was in Montenegro, where I noticed an unbelievable abundance of insects. I don’t remember exactly what it used to be like here, but I have the impression that there used to be more horseflies and mosquitoes.

Can you explain these developments?

N: Changes in land use play an important role, with the intensive use of fertilizers, herbicides and pesticides. A second factor is the pressure from invasive species that displace native animals and plants. This pressure is increasing with climate change.

S: Intensified agriculture is a major problem. Biodiversity does not have priority despite so-called ‘biodiversity subsidies’ and the need to demonstrate ‘ecological performance’. Take, for example, the presence of small-scale structures – under certain forms of direct payment you are even rewarded for clearing them. There are also too few protected areas, and those that we have are not maintained well enough. The FOEN has shown that it requires an initial CHF 1.6 billion to restore them, and then an annual 80 million francs to keep them in good shape. The ‘Biodiversity Action Plan’ we have increased the finances a little for once, but that is not enough. And I’m always afraid that the funds for the environment will

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Niklaus Zimmermann is a biologist who worked in the Inter-governmental Platform on Biodiversity and Ecosystem Services (IPBES). He is a member of the WSL Directorate.
The protection of biodiversity can be justified not only from the point of view of values, but also economically. Biodiversity benefits people, for example by pollinating crops.

be cut in the annual budget debate. It has no political priority.

**Why should it be a priority?**

N: Actually, it’s about a legacy: we want to pass on our earth as we found it, and not in worse shape. But there are also economic aspects. In America, for example, certain agricultural regions have been cleared to such an extent that pollination no longer works. This leads to huge crop losses. But I find the economic arguments dangerous: if an individual species disappear, it does not necessarily lead to economic damage. Such a loss would be considered acceptable if you think purely in economic terms.

“Scientists should make clear statements and not always relativize everything.”

For further information on the Action Plan Biodiversity, see: https://bit.ly/2Dn9pfl
The first approach, the legacy, appeals to me much more. But many politicians see only the economic aspects.

**What would it take for politicians to become more active in protecting biodiversity?**

**s:** With the current composition of our Parliament, only pressure from the public can help. We must start initiatives. Civil society must be the driving force behind politics.

**Should we also do more research?**

**s:** Science should show alternatives, for example to dangerous pesticides. After all, do farmers really enjoy using harmful pesticides?

**n:** For me education is very important. We should research what we do not yet understand. But we do know enough to be able to act now. We scientists must also make our results more accessible to the public in order to counteract the impression that scientific results are arbitrary and trivial.

**s:** Exactly. The transfer of knowledge is central. In my experience, science has a real credibility problem. I find that dramatic.

**n:** The whole development that we have gone through since the Enlightenment is based on the use of logic and argumentation – and now certain circles are questioning that. They simply make claims about whatever they want! For me, this is like stepping back into the Middle Ages, when what was preached from the pulpit specified what was true and what was false. However, science must not be misused for statements that are too dramatic, otherwise it can be disputed. This is what happened with the debate about forests dying a few decades ago. Then people said: “The forest is still standing, so you can’t believe science.”

**s:** That’s not quite true! Steps were taken to reduce acid rain, and the catalyst converter was quickly introduced. Scientists should make clear statements and not always relativize everything.

**Politicians also like to remain vague. For instance, the ‘Biodiversity Action Plan’ postpones concrete measures to a second implementation phase starting in 2024. Will that be too late?**

**n:** The longer we wait, the greater the irretrievable loss. In waiting, we run the risk that further ecosystem functions will be impaired. At the same time, it is estimated that only 20 percent of the world’s species have been described, which I find both fascinating and frightening. It means we will lose many species before we’ve identified them, and before we know anything about their distribution, their ecology, and their contributions to ecosystem services.

**s:** What is worse than the delay is that even when steps are finally taken, they will not be very concrete and will have little effect. Drastic measures are needed, and people must accept that there are limits. It is not only politicians who find this difficult! (bio)