\*Slide intro

\*clicG - Ecological monitoring in this Mooc mainly deals with monitoring at the level of a protected area. But there are plenty of other levels where monitoring can be implemented.

\*clicB - Sometimes it doesn’t involve the entire protected area. It can be a specific ecosystem, or a targeted species that would lead to only monitoring the area in which it exists.

\*clicG - For example, chimps of the Niokolo Koba National Park in Senegal have undergone specific monitoring for a long time that obviously only involved the forest blocks they are present in, in other words less than 10% of the park's surface.

\*clicB - If the indicators are well chosen, localised monitoring can however adequately inform on the state of the entire park because generally, the conservation conditions are inherently linked, and local success depends on overall protection.

\*clicG - Here's another example: monitoring the large carnivores is sometimes taken as an indicator of the overall state of the PA's conservation, assuming that they are at the highest level of the food chain.

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\*… This however is not always relevant: their number can decrease due to targeted persecution from villagers while the rest of the protected area is being preserved, or they can prosper by feeding themselves on the periphery of the area while the antelopes of the park become scarcer.

\*B - So in the long run, managing the ecosystem by focusing on only one species is not the most suitable solution.

\*clicG - By the way, managing a site regardless of others in the same network can give way to some shortcomings.

\*B - Indeed, it is often useful if not essential to share the methods and results with the other parks in the same network (a national network for instance) or between protected areas covering the same type of ecosystem (marine areas, mountain areas...).

\*G - Otherwise, within a site, you risk missing a trend visible at the level of the entire network! \*clicB - For instance, marine protected areas should make sure the information obtained from monitoring is communicated from one area to the other. This makes sense when you look at fish species or turtles that will move from one area to the other.

\*clicG - The specific case of transboundary protected areas is indicative. Of course, these sites share the same natural resources and ecological monitoring should involve the entire ecosystem.

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\*… It is however rarely the case because of logistical, administrative and even legal difficulties.

\*clicB - Thus, monitoring elephants in Pendjari National Park shows strong variations from one year to the other. This doesn't mean an increase or decrease of the population, but simply the fact that according to the state of the environment, elephants may still or already be in neighbouring areas of the W, the Arly etc. The only way then to get a proper idea of the population's number would be by monitoring the entire territory shared between Burkina, Benin and Niger.

\*clicG - So the question of monitoring beyond the borders of the protected area is of course relevant.

\*B - Many species are a value for a PA but their distribution in space or in time extends far beyond the limits or the time when the monitoring takes place; adapting monitoring to the situation seems to be a necessity.

\*G - Monitoring the species can be done only when it is found within the PA. The risk is then that the conservation measures we take will be disconnected from real challenges faced by the species when it is located somewhere else.

\*clicB - For instance, the elephant population of Gourma in Mali moves in a very vast area between several different waterholes. Only counting animals that are around one waterhole doesn't provide a general idea of the threats faced by the elephants, nor does it give an idea of possible solutions regarding their conservation.

\*clicG - You can extend monitoring to all the areas visited by the species, in other words adapting it to specific moments in time when the species goes to every site. This requires a strong collaboration between sites, countries or regions.

\*B - A good example of this is the water bird survey that takes place every year around mid January in Europe but also in Africa, to have a better idea of the species’ population.

\*clicG - You can also choose to focus on a species rather than a place, wherever it may be, which requires even better coordination.

\*B - Thus, many migrating bird species are monitored mainly thanks to collars or microchips because they move a lot and inconsistently from one year to another. Localised monitoring wouldn't have any sense other than to provide local information to the manager.

\*clicG - You can also use tools that allow monitoring ecosystems as a whole, on a very big scale. It is the case of satellite images that give information on the health state of entire sections of the planet and allow to better understand what is happening locally by contextualising the situation.

\*clicB - A good example would be the impacts of climate change, that can be hard to detect locally over a short period of time while they will be apparent on a big surface or over a long period of time.

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\*…For instance, the shrinking surface of a wetland or the coastline changes...

\*clicG - Finally, it is required to adapt ecological monitoring to the characteristics of the species or environments that you want to monitor and to the challenges they face. It is therefore not certain that all the answers regarding the management of the protected area can be found at the level of this protected area.

\*B - It will always be useful to see what is done elsewhere, at other levels, in order to know if the questions you are asking yourself for your protected area wouldn't be better treated this way.