\*Slide intro

\*clicB - We already saw that the role of ecological monitoring in a PA is to get information on its values' condition, and thereby to assess the impact of the management actions on these values over time.

\*clicG - For instance, in Ol Kinyei, a conservancy in Kenya, one of the values is the migration of wildebeest from the mountain to the nearby Mara ecosystem. This is a value that matches a single species: the wildebeest.

\*clicB - In this same conservancy, another value is the Acacia forest. This time, the value matches a habitat as a whole. It is clear that monitoring these two values calls on different criteria

\*G - This is why we will look at which criteria can characterise the values. This is what we call key ecological attribute.

\*clicB - A key ecological attribute is shaped by the vital characteristics of a value's ecology. By identifying these attributes you can describe the value and measure its viability.

\*G - Ecological attributes are based on some fundamental ecological concepts. To make it simple, we can say that there are 3 main categories of ecological attributes to characterise species and their habitat:

\*clicB - The size of the natural habitat or the abundance of the considered value on the territory…

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\* - for instance the number of elephants present in the Masaï Mara reserve.

\*clicG – The condition of the value, the structure of the population and the interactions that exist between individuals

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\*-… such as the compatibility between the number of predators and the density of preys within a park.

\*clicB - Finally, the context in which the value evolves.

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\*…This includes the ecological processes that can contribute to maintaining the presence of this value, such as floods, ponds, the fire regime, or the connectivity for species moving from one habitat to another.

\*clicG - After having identified the ecological attributes for each value, you simply need to determine which ones are key for its survival in the long run, and consequently important to include in the ecological monitoring process.

\*B - Taking the example of a tree, the best way to check its health would be by assessing the number of flowers produced per year, rather than looking at its size.

\*clicG - But even if these attributes are describing the values, they are often too vague to be assessed effectively and at low cost. Hence the necessity to define indicators that will give us information regarding the state of the attributes over time.

\*clicB - So roughly, an indicator can be a measurable characteristic of the ecological attribute,

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\* - …for example, the total number of adults of a population of impalas.

\*clicG - This indicator can also be an aggregation of several characteristics of an attribute combined in only one index. For example, the evolution of a forest's canopy can be measured by the number of species encountered.

\*clicB - So choosing a good indicator to characterise the ecological attributes is key to the success of the monitoring. This isn't an easy task, so let's list some elements to defining a good indicator:

\*clicG - They need to be measurable, in a quantitative or qualitative way by procedures giving reliable, repeatable and precise information.

\*clicB - They need to be predictable over time, meaning the indicator should have the same meaning for everybody at all times.

\*clicG - They should be specific, so the indicator is always associated with said ecological attribute in a non-ambiguous way, and is not affected by other factors.

\*clicB - The indicator has to be noticeable and should vary significantly in response to the variations of the threats or actions we engage.

\*clicG - It has to be swift and able to rapidly detect the changes of the ecological attribute so that taking the appropriate management measures on time is possible.

\*clicB - It needs to be easy to collect and not require several operators or pricy materials, in the best cost-effective way of course.

\*clicG - Finally, it should facilitate the communication of results, and therefore be easy to understand in order to allow the public to better get the situation of the PA through its attributes.

\*clicB - Once the indicator is identified, the first step will be to determine its current state which will serve as baseline condition. Then, define the desired state you want to achieve for this indicator.

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\*…This will enable the analysis of results of the ecological monitoring in view of the baseline condition of the values, and the conservation goals for each of them.

\*clicG - Obviously, there will be a certain fluctuation of the indicators within an acceptable area.

\*clicB - This is what we call the acceptable level of variation of indicators. Thanks to these variation thresholds, we can determine what managers deem to be the normal level of change of the considered value, and thereby to define what level of alteration of the ecological attribute will be deemed too severe and need an action plan.

\*G - The acceptable level of variation also defines the level of restauration of the ecological attribute when needed.

\*clicB - As you can see, it's rather simple. The steps to follow are first to identify the key ecological attributes of each value.

\*G - Then, to select the relevant indicators for each attribute and to characterise the baseline condition of the attribute by indicators.

\*B - Finally, you need to determine the acceptable levels of variation of the indicators that will obviously contain the desired state of conservation for the considered attribute.

\*G - Nothing really complicated, just a little bit of methodology.