



GLOBAL WORKSHOP ON FOREST ECOSYSTEM RESTORATION INITIATIVE

26 ~ 28 AUGUST, 2025 | SEOUL, REPUBLIC OF KOREA



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Convention on
Biological Diversity

Key threats to forest biodiversity & Solutions to safeguard it

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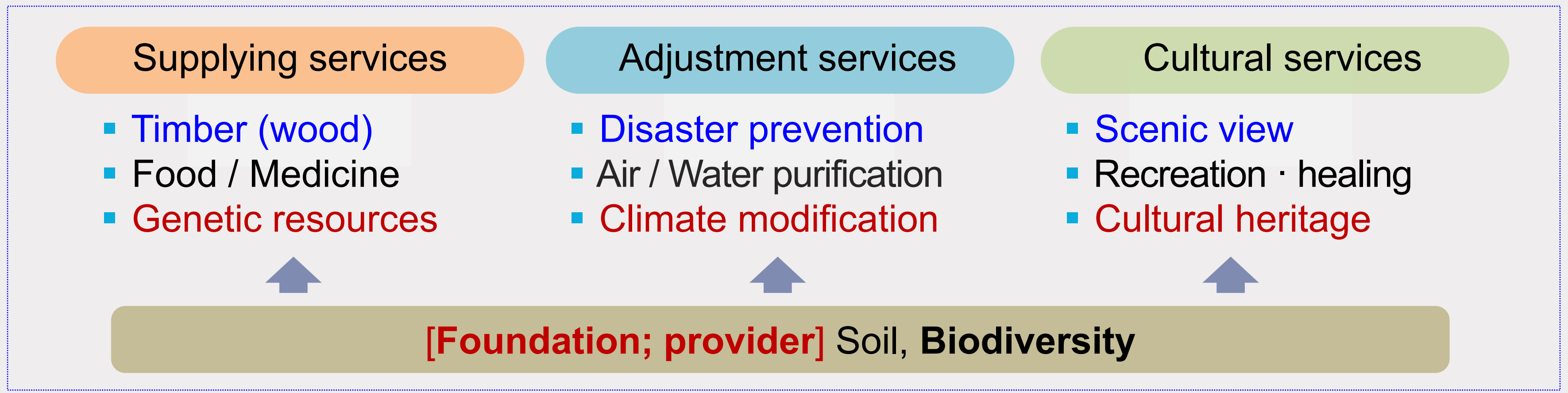


Convention on
Biological Diversity

- What is forest biodiversity?
- Key threats to forest biodiversity
- Strategic solutions
- Korean case studies
- Conclusions

What Is Forest Biodiversity?

- Forest is not just about trees; it's about the complex web of organisms that maintain the health and productivity of our planet.
- So, Forest Biodiversity defines **genetic**, **species**, and **ecosystem** diversity within forests
- Importance of Forest Biodiversity : foundation of various forest ecosystem services



Key Threats to Biodiversity : numerous threats

- Fragmentation
 - ✓ Urban expansion : roads & development
 - ✓ Wildlife migration barriers, disrupt connectivity
- Climate change
 - ✓ Shifts in phenology and species range
 - ✓ High elevation trees such as Korean firs
- Invasive species and pathogens
 - ✓ Impact on native plants and other organisms
 - ✓ Pine-wood nematodes, arrowroot (kudzu vine)
- Overexploitation and wildfires
 - ✓ Clear-cut vs. selective cutting
 - ✓ Cumulative fuel results in huge fires



Strategic Responses : Human can do both bad and good things

- **Reconnect ecosystems**

- ✓ National ecological network project
- ✓ Allow species to move and adapt

- **Climate adaptive forest management**

- ✓ Restoration : help regeneration with considering genetic diversity
- ✓ Transitioning : for resilience and climate change mitigation capacity

- **Control invasive species**

- ✓ Early Detection, Rapid Response : [citizen science](#), local engagement
- ✓ After establishment : introduction of natural enemy and adaptation

- **Good governance & cooperation**

- ✓ Draw a consensus for the rehabilitation from [diverse opinion \(esp. opinion leaders\)](#)
- ✓ Not a velocity, but a direction ✕ [awareness of importance & value of biodiversity](#)



Korean Case Studies (1) : Endanger species *Abies koreana*

- Little regeneration due to climate change at Mt. Geumwon
- Identify distribution & **genetic diversity** of *Abies koreana*
 - ✓ Evaluate genetic diversity at adjacent mountains
 - ✓ Select proper traits : similar to those of Mt. Geumwon
- **Preparation of seedlings**
 - ✓ Collect seeds from Mt. Jiri and Mt. Duckyou & germinate them
 - ✓ seedling, mycorrhiza-inoculation, fertilization, etc.
- **Transplanting & monitoring : 92.7% survived**



transplanting



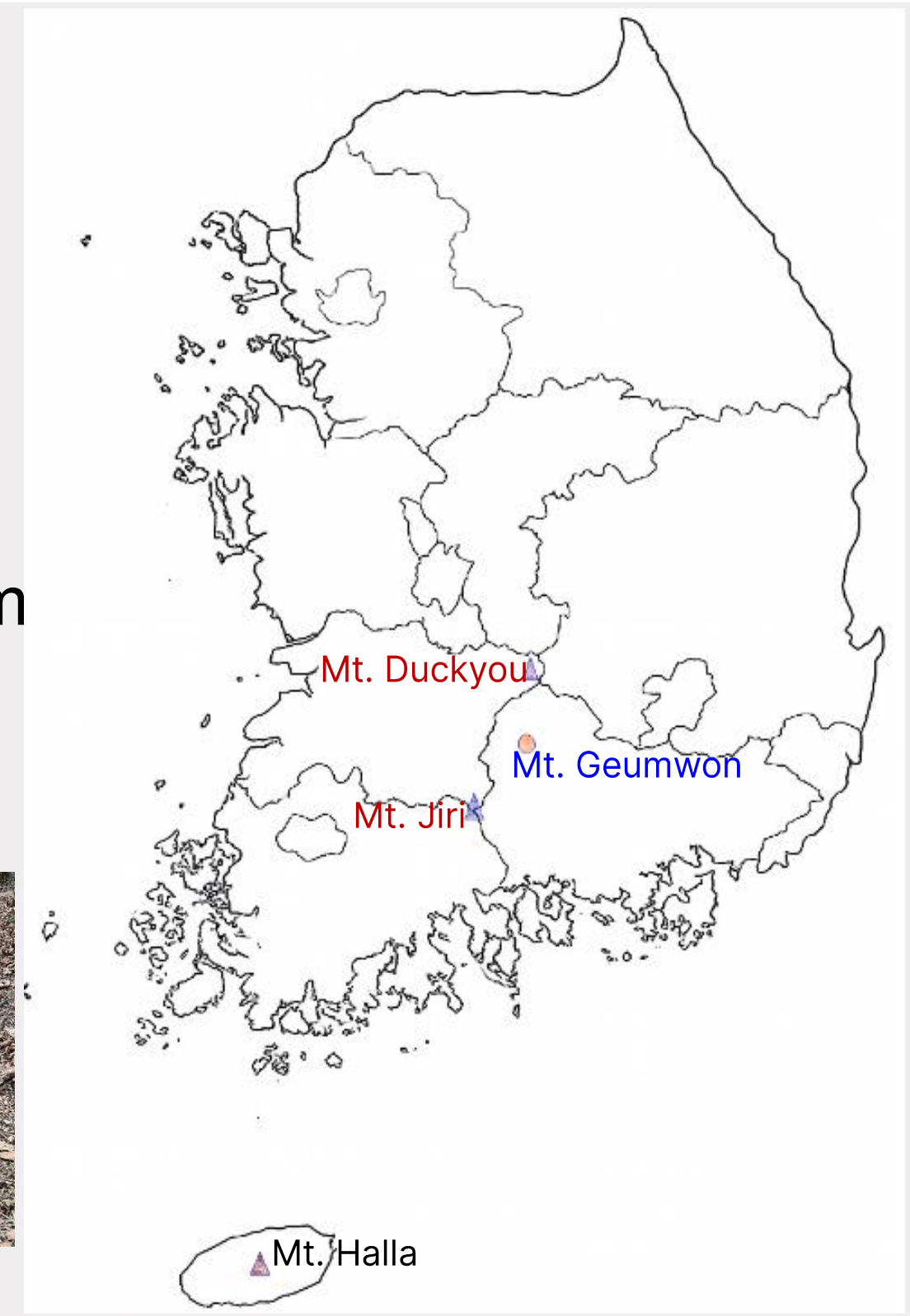
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monitoring



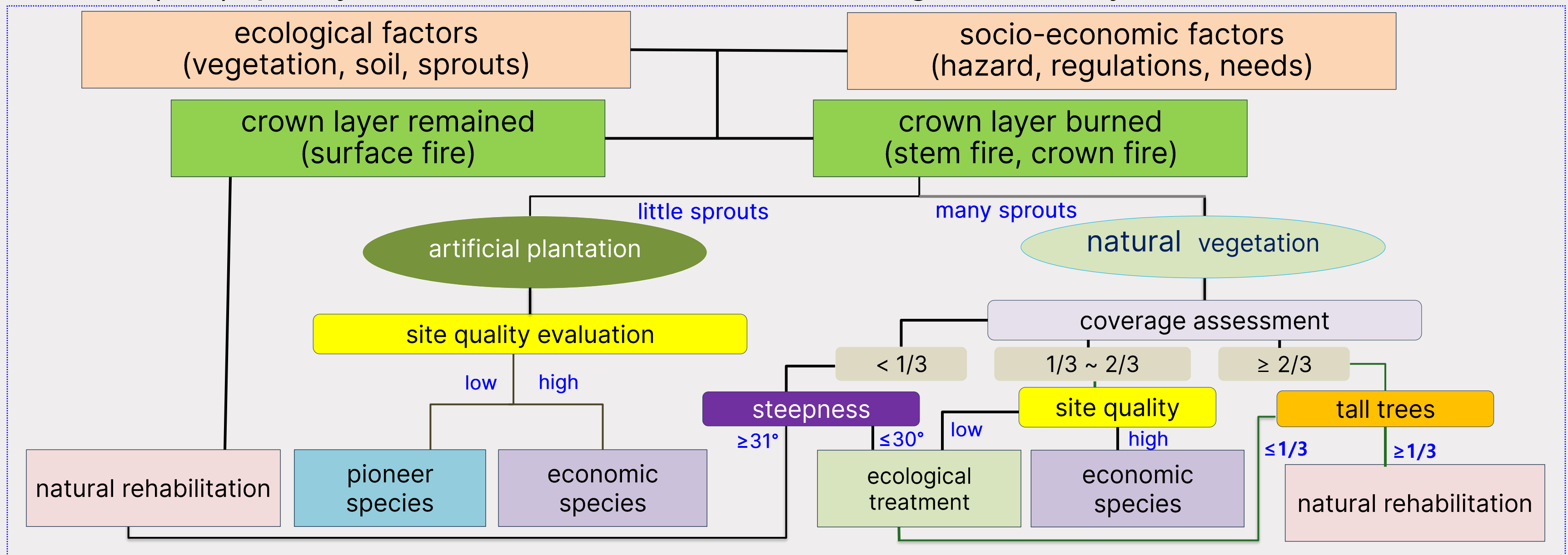
5 years later



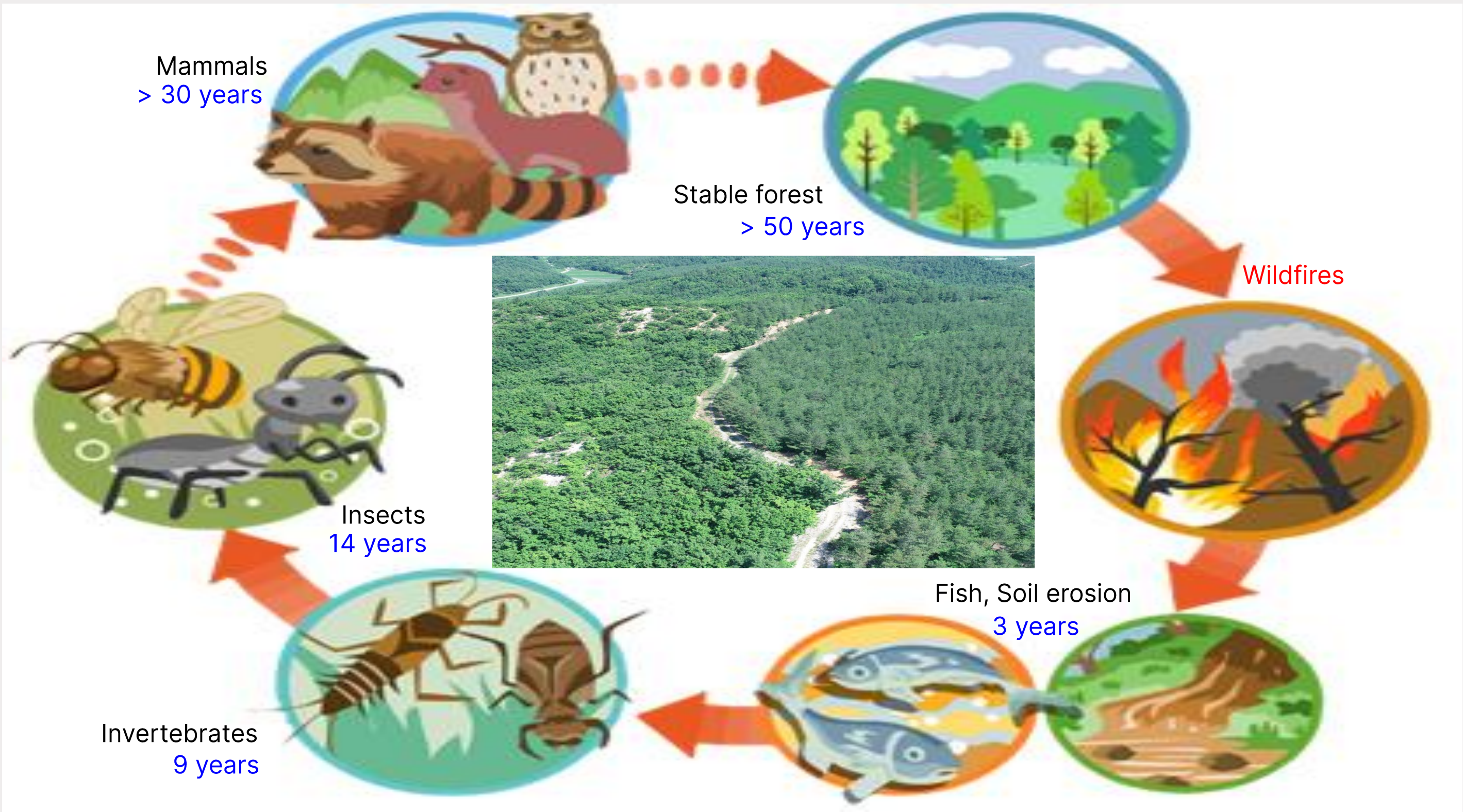
Korean Case Studies (2) : Restoration of huge wild-fired sites

Discussion for natural rehabilitation vs. artificial plantation

- ✓ Economic (rapid) approach vs. ecological (long-term) way
- ✓ Site (soil) quality is so critical, but decision making is made by owner



Recovery from the wildfire



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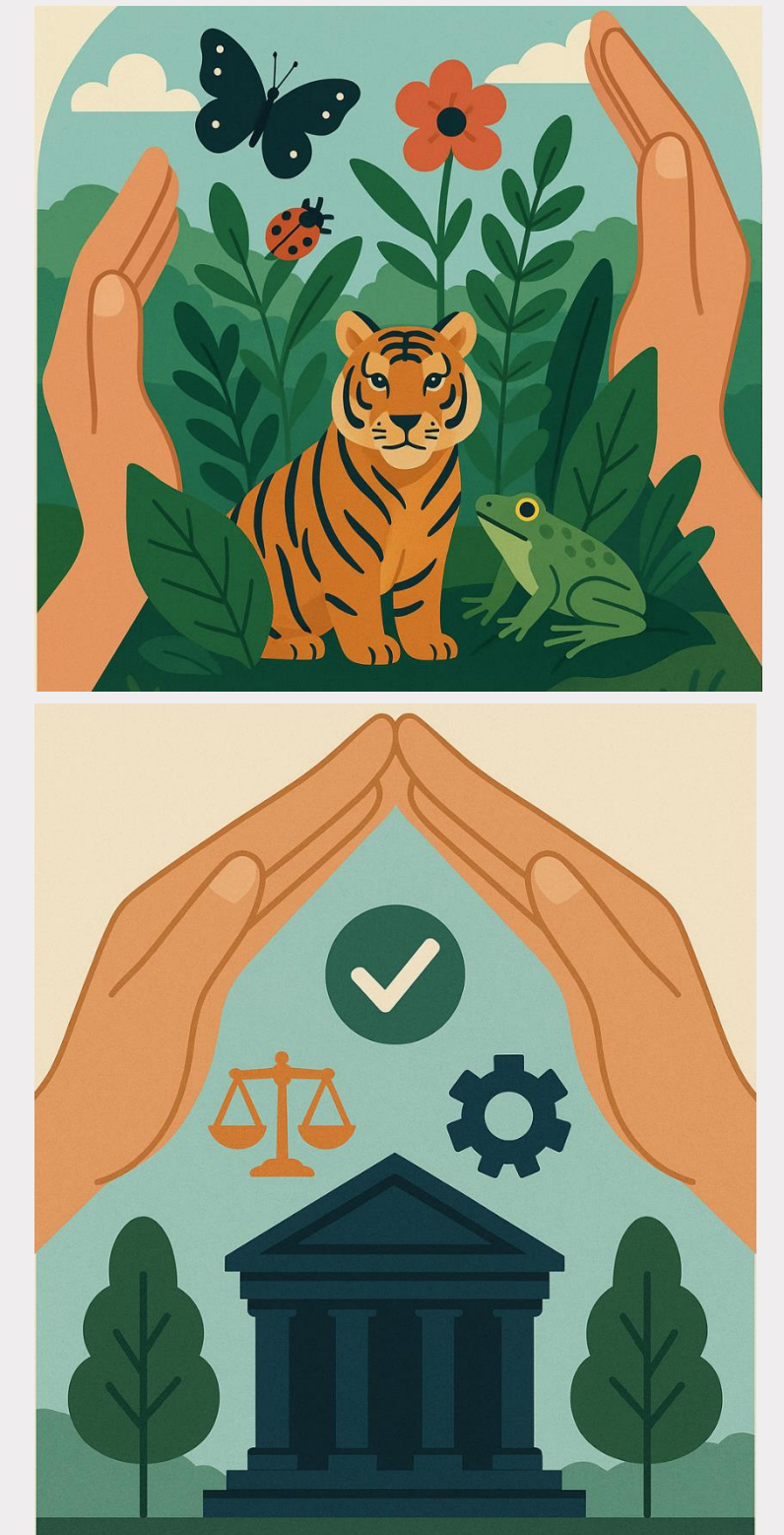
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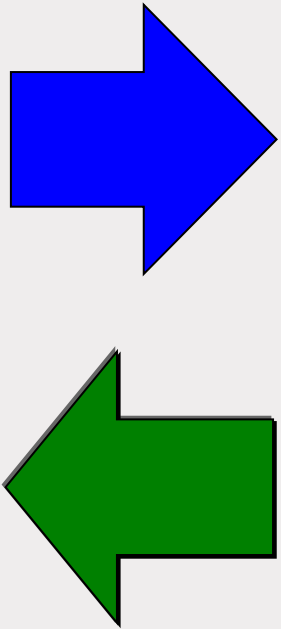
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Conclusions : To show leadership in forest management

- **Forest biodiversity**
 - ✓ Forest biodiversity is a foundation of various ecosystem services
 - ✓ Various level of biodiversity need to be acquainted and considered
- **Key threats and recommended solutions**
 - ✓ Prevention is the first, but good adaptation is also very important
 - ✓ Urban expansion, climate change, invasive species are unescapable
- **Key factors for safeguard**
 - ✓ Human can do good things as well as bad activities on ecosystem
 - ✓ Good governance is the key hurdle to overcome for progress
- **Leader is not a commander (boss), but an expert manager (coach)**
 - ✓ Understand the importance of forest biodiversity thoroughly
 - ✓ Prepare detailed knowledge to make a good governance with public



Global Workshop on Forest Ecosystem Restoration Initiative



Biodiversity is a key of resilience!