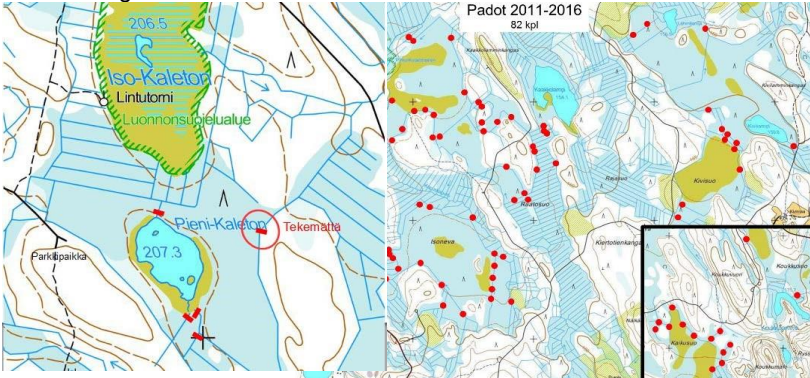


UPM Biodiversity program

UPM BUSINESS AND BIODIVERSITY PROJECTS 1997-2019

| | PROJECT NAME | TARGET | DESCRIPTION | TIME | PARTNERS |
|----|--|---|---|------------|--|
| 1. | Esker habitats | To find solutions to restore esker habitats into more natural like conditions | Because of manmade fire prevention activities, eskers have not burnt actively. This has caused a situation where tree cover has closed and natural conditions, open and hot south facing slopes have become cold and shady. Due to this development, a major percentage of esker species have become threatened. This initiative consisted on several different projects to find solutions to treat esker habitats in a way that threatened species would benefit and become more common. | 2004-2014 | Finnish Environment Institute Metsähallitus |
| 2. | Valuable habitat inventory | To find valuable habitats defined by Forest Act, forest certification and UPM from UPM owned forests | All UPM forests were inventoried by map and on-site to find and protect valuable habitats. Inventory was done by trained specialists on summer time. As a result, over 20 000 sites were identified and protected, like springs, brooks, unditched mires and groves. | 1997-2002 | |
| 3. | Fire habitats | To increase amount of controlled fires and to find new ecoefficient ways of controlled fires to promote biodiversity of fire-dependent species. | Forest fires have been common in Finnish forests before fire preventing activities took place. Due to the history, part of species are dependent forest fires and they need burnt wood and soil in their lifecycle. Target was to increase the amount of silvicultural controlled fires and to find new ways, like burning of retention tree groups, to increase resource to fire dependent species. | 2004- 2011 | Ministry of Agriculture and Forestry Ministry of Environment via the METSO -project |
| 4. | Restoration of Boreal Forest and ForestCovered Mires, Metsälife | To restore forests and mires into more natural conditions in protected areas to promote biodiversity | By restoration to create characteristics of a natural forest that are lacking or absent, such as dead and decaying wood, charred wood, deciduous trees, variation in the structure of the forest and natural hydrological conditions. Target was to speed up nature's processes to promote biodiversity. | 2002-2007 | EU LIFE Nature Fund Metsähallitus |

| | PROJECT NAME | TARGET | DESCRIPTION | TIME | PARTNERS |
|----|---|---|--|------------|--|
| 5. | Peatland restoration | To restore mire's hydrology into more natural conditions by blocking earlier made ditches and to promote habitats of Red Grouse (<i>Lagopus lagopus</i>) | <p>Selected mires were identified to be low productive for forestry but having value for biodiversity and to Red Grouse. Plan how and where earlier made ditches shall be blocked and how was done and implemented. Also possible need for harvesting to create more open area for Red Grouse was investigated.</p>  | 2010- 2017 | Keurusseudun luonnonystävät (Friends of nature in Keuruu area) Finnish Association for Nature Conservation's district in Central Finland |
| 6. | Siberian Jay | To find solutions to promote habitats for Siberian Jay (<i>Perisoreus infaustus</i>) and to study needed conditions in breeding site and surrounding forests. | To investigate possible protection needs in breeding sites and what kind of forest activities are possible in surrounding forests in areal level. | 2009-2011 | Finnish Association for Nature Conservation, funding Ministry of Agriculture and Forestry and Ministry of Environment |
| 7. | Great Crested Newt (<i>Triturus cristatus</i>) | To promote habitats of EU-protected species Great Crested Newt | To investigate possibilities to improve habitats of the species by harvesting in buffer zones and to improve old habitats by excavator. It was also tested, can new habitats be created by digging. | 2010-2013 | Center for the Economic Development, Transport and the |

| | PROJECT NAME | TARGET | DESCRIPTION | TIME | PARTNERS |
|-----|---|--|---|-----------|---|
| | | | | | Environment, North-Carelia |
| 8. | Native hardwoods | To increase the amount of rare broadleaf species to improve living conditions of species dependent on them | Project focuses on planting rare broadleaf species, like lime tree and oak, to add resources to species dependent on them. Project focuses on selecting right genotype to areas to-be-planted and actual planting of seedlings. | 2004 | |
| 9. | Dunlin (<i>Calidris alpina</i>) | To treat habitats of Dunlin to promote their breeding site | Reaping of seashore areas where Dunlin breeds with local representatives of Birdlife in Yyteri area. | 2006-2010 | ▪ Birdlife |
| 10. | White-Backed woodpecker (<i>Dendrocopos leucotos</i>) | To promote actions for White-Backed Woodpecker, the most threatened forest bird in Finland | To collect knowledge on White-Backed Woodpecker and its habitat needs and to decrease prejudice towards the species by communicating new knowledge. | 2013-2015 | ▪ WWF Finland ▪ Finnish Environment Institute ▪ Metsähallitus |
| 11. | Osprey (<i>Pandion haliaetus</i>) nests | To build artificial nest for Osprey to promote successful nesting | Artificial nests are built for Osprey to promote breeding success. Nests are placed into UPM forests on suitable sites. | 2006- | Osprey Foundation |
| 12. | Osprey (<i>Pandion haliaetus</i>) satellite monitoring | To learn migration behavior and use of space in nesting sites | Satellite transmitter was attached to selected Ospreys. Transmitter sent GPS were the Osprey was moving to understand how Ospreys use space in nesting sites and while migrating. | 2007-2012 | Finnish Museum of Natural History |
| 13. | Three-toed woodpecker | To study usage of space in nesting time in forest area | Radio transmitters were attached into Three-Toed-Woodpecker to find out how do they use forest area and deadwood resources in nesting time. | 2005 | Finnish Museum of Natural History |

| | PROJECT NAME | TARGET | DESCRIPTION | TIME | PARTNERS |
|-----|-----------------------------------|--|---|-----------|--|
| 14. | Beatles in deadwood | To study the importance of deadwood to beetle species and to understand what benefits retention trees can produce to beetle biodiversity | Beetle traps are attached to artificial snags in summer time. Beetles are collected and species are identified to understand can deadwood and retention trees promote beetle species biodiversity. | 2004- | Independent researcher |
| 15. | Boreal Peatland -Life | To protect and restore valuable peatlands | LIFE project focused on finding valuable peatlands in UPM owned land. The most valuable sites in their natural state were protected and earlier ditched areas' hydrology was restored to their natural condition to promote biodiversity in peatlands | 2010-2014 | Metsähallitus and Center for the Economic Development, transport and the Environment |
| 16. | METSO-programme | To voluntarily protect valuable habitats | UPM promotes voluntary protection of valuable habitats. Habitats are protected in UPM owned forests and with private forest owners is discussed on the possibility to protect valuable habitats they own. | 2007- | |
| 17. | Heritage forest programme | To promote voluntary forest protection | To share knowledge on voluntary forest protection to private forest owners and to protect voluntarily selected sites in UPM forests | 2005 | WWF Finland |
| 18. | Bats in commercial forests | To study how EU protected species Brand's bat use forest habitats in their daily life | Radio transmitters were attached to Brand's bats (<i>Myotis brandtii</i>) and their space usage in commercial forests was followed. | 2008 | Independent researcher |
| 19. | Light & Fire Life | To promote biodiversity in hot and open areas by using harvesting and burning methods | EU Life project In Natura 2000 areas harvesting and burning methods are used to create sunny and hot habitats for threatened species needing hot sunlight. Habitats are, for example, esker slopes where trees shade sun needing vascular plants. | 2015- | Metsähallitus |

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|-----|--|---|--|-------|-------------------|
| 20. | Osprey (<i>Pandion haliaetus</i>) nest camera | To study Ospreys behavior in nesting time | Camera was set to film Ospreys nest to study nesting behavior of Osprey. | 2015- | Osprey Foundation |
|-----|--|---|--|-------|-------------------|

| | PROJECT NAME | TARGET | DESCRIPTION | TIME | PARTNERS |
|-----|---|--|---|-------|------------------|
| 21. | Parallel field testing of forest certification standards | To understand how forest certification standards emphasizes sustainability aspects | Different forest certification standards were studied and tested on how they take into account economical, ecological and social aspects. | 2004 | DNV, WWF Finland |
| 22. | Decaying wood in commercial forests | To inventory how much there is decaying wood in commercial forests | Inventory amount of decaying in wood in commercial forests in Kainuu and Hame region. Two separate forest estates were inventoried on site basis | 2005 | |
| 23. | Forest certification | To promote sustainable use of forests | UPM offers FSC and PEFC forest certification to private forest owners. Since 2012 private forest owners have been able to certify their land to FSC and 2014 to PEFC via UPM group certificates. All UPM land is certified according to FSC, PEFC or both. Protection and restoration measures are approved and verified by 3rd party experts: http://fsc.force.com/servlet/servlet.FileDownload?file=00Pf300000p1JNbEAM | 1998- | |
| 24. | Voluntary projects | To promote living conditions of forest bird species | Living conditions of forest bird species are promoted by voluntary work. Local bird associations have selected sites and projects and gathered people to voluntary work days. | 2011- | Birdlife Finland |

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|-----|--|---|---|-------|---|
| 25. | Spatial information of osprey nests | To promote living conditions of ospreys in commercial forests. | UPM made an agreement with Osprey Foundation and LUOMUS (Finnish Museum of Natural History) on providing spatial information of osprey nests to UPM. UPM uses the information to safeguard the nests in forestry operations. Information will be updated regularly. | 2018- | Osprey Foundation, LUOMUS (Finnish Museum of Natural History) |
| 26. | Spatial information of nests of large diurnal birds of prey | To promote living conditions of large diurnal birds of prey in commercial forests | UPM and PKLTY ry (Ornithological society of North Carelia) agreed on providing spatial information of nests of large diurnal birds of prey to UPM. Information covers UPM's own forests and some private owned forests in North Carelia. UPM uses the information to safeguard the nests in forestry operations. Artificial nests are also built to replace abandoned old nests. Information will be updated regularly. | 2018- | Ornithological Society of North Carelia |
| 27. | Migrant fish project | To support restoration of migrating fish stocks | UPM and Centre for the Economic Development, Transport and the Environment of Central Finland are removing fish migration barriers from streams in Central Finland. | 2018- | Centre for the Economic Development, Transport and the Environment of Central Finland |
| 28. | Guidelines for forestry operations near ospreys nesting trees | To promote living conditions of ospreys in commercial forests. | UPM and Osprey Foundation created in cooperation guidelines for forestry operations near ospreys nesting trees. Guidelines are deployed in to everyday use in UPM forestry operations. They are also published in UPM's web page to allow all interested parties to use them. | 2017 | Osprey Foundation |

Threatened species occurrences on company owned forests (based on data of Finnish Environment Institute):

| IUCN-category | Number |
|---------------|--------|
| LC | 3 |
| NT | 494 |
| VU | 226 |
| EN | 51 |
| CR | 7 |