

Delivering biodiversity conservation

An initiative by SCA

March 2021

Contents

Summary	2
Background	3
Introduction to SCA.....	3
What are we achieving with this initiative?	4
Swedish forestry – the context.....	5
SCA forest management and operations.....	6
Connecting the Red List to SCAs forest management	7
About the Swedish Red List 2020.....	7
SCAs species commitment.....	8
Habitat requirements	11
Forest management implications	11
Extent of habitats for redlisted species 2020.....	12
Two roundtable discussions	13
The road ahead.....	14
Internal operations	14
Improving methodology and data generation/input.....	14
Partnerships	14
Reporting	15
References	15
Annex 1. Species listed as SCAs Species Commitment	16

Summary

- SCA has embarked on an initiative aiming to improve precision in biodiversity conservation measures on the 2.6 million hectares of corporately owned land. This initiative links to the company's comprehensive sustainability platform that serves to guide its overall operations.
- Effective, efficient and well documented biodiversity conservation strengthens overall business performance and value creation in SCA by ensuring delivery of responsibly harvested wood and responding to expectations from investors and customers.
- SCAs corporate priorities place biodiversity conservation as a key component of responsible forest management. Similarly, national forest policy in Sweden stipulates equal weights between production and environmental goals since introduction of the current Forestry Act in 1994.
- Aligned with forestry regulations, biodiversity conservation is addressed on all SCA land, i.e. set-aside productive forest land, forests managed specifically for conservation values, land under regular management for timber and conservation values (retention forestry), as well as low-productive land.
- The initiative has also been motivated by the need for improving reliability in overall data, knowledge and reporting. Today, we experience discrepancies in information provided from official sources. For example, forest statistics from the National Forest Inventory indicate significant improvements for a number of important forest parameters relevant to biodiversity conservation over the past decades. At the same time, official communications by the Nature Protection Agency claim a decline in the status of and conditions for biodiversity.
- SCA has made an in-depth analysis of the 2020 Swedish Red List of threatened species and associated databases to determine which species are redlisted and dependent on suitable habitats on SCAs land.
- 203 redlisted species were identified as a Species Commitment for SCA, for which specific efforts to preserve and develop supporting habitats should be made;
- 12 key habitat categories were identified and described, linking to requirements of each of the 203 redlisted species.
- Current conservation status on SCAs land were evaluated with respect to the identified habitat categories. In total 400,000 hectares of the various habitats were confirmed within set-aside areas identified at the landscape level and on low-productive land. Furthermore, in 2020, 10% of the area planned for harvesting was set-aside, preserving such habitats in the managed forest.
- The approach to build on the Red List as well as status of the various habitats will be transparently reported in SCAs corporate Annual Reports.
- Next steps include reinforcing conservation measures in corporate forest operations, further enhancing the underlying knowledge base, improving monitoring and evaluation, and establishing partnerships for mutual learning and continued methodology development.

Background

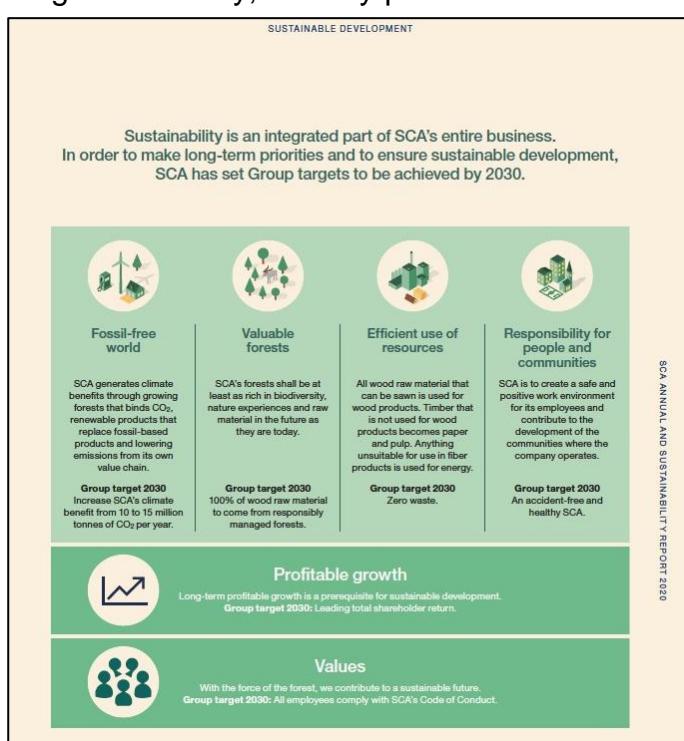
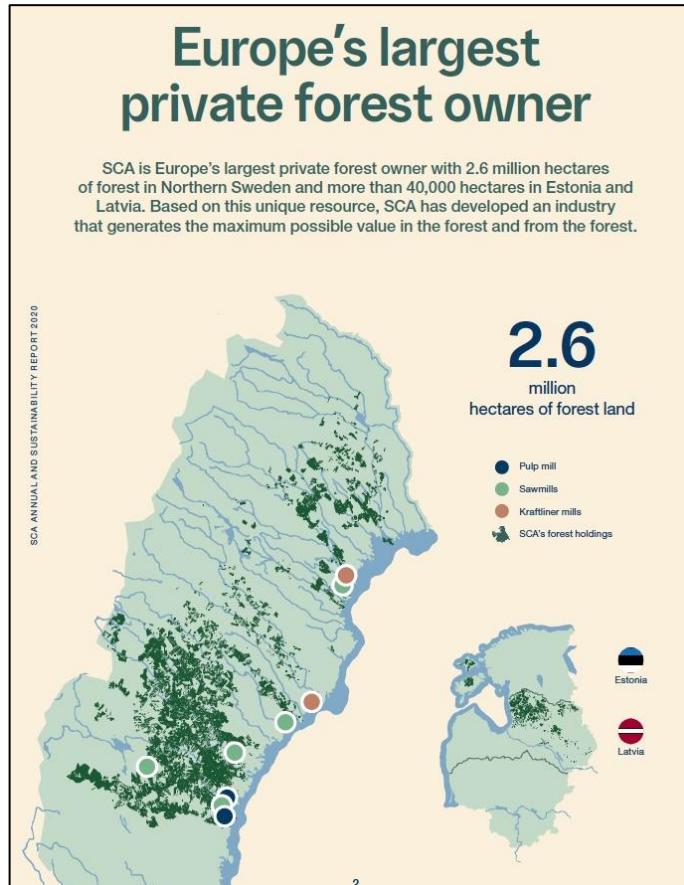
Introduction to SCA

SCA is a listed forest industry corporation headquartered in Sundsvall, Sweden. Founded in 1929, with roots dating back to the 17th century, SCA has a long history of developing forest industry and forest management in the Northern part of Sweden. SCAs business include management of its own forest estate of 2.6 million hectares, substantial wood procurement from other landowners, sawmills, pulp- and paper industry units and renewable energy production. Turnover in 2020 was SEK 18.4bn (€ 1.8bn), with a predominantly international customer base.

Sustainability is at the core of SCAs business with links to all of UNs 17 sustainable development goals, covering social, economic and environmental dimensions of sustainability. Conservation and sustainable use of biological diversity, as expressed through SDG 15 as well as the portal paragraph of the Convention on Biological Diversity, is a key part of SCAs sustainability efforts.

Specifically, the sustainability component “Valuable forests” aims toward forests that are at least as rich in biodiversity, nature experiences and raw material in the future as they are today.

Illustrations on this page from SCAs Annual Report for 2020



What are we achieving with this initiative?

Conservation and sustainable use of biological diversity has a high priority in international and national policy, through the Convention on Biological Diversity, European Union strategies and regulations, as well as environmental goals set by the Swedish Government (Naturvårdsverket, 2020a). Accordingly, biodiversity is increasingly a priority factor in the finance and industry sectors. Sectors such as mining, food or transport typically aim to minimize their external impact on biodiversity. By contrast, the forest-based sector has to address biodiversity conservation as an integral part of its business model, as it relies on the biological production system for its main raw material. Actively managed forests must simultaneously deliver conservation values and wood for renewable and climate-smart products.

Effective, efficient and well documented biodiversity conservation strengthens the overall business performance and value creation in SCA by ensuring a high delivery of responsibly harvested wood and responding to expectations from investors and customers.

Consequently, biological diversity is a key and integrated component in SCAs corporate sustainability efforts. SCA is committed to deliver its share to society's ambition to conserve and enhance biological diversity. This is a commitment that has direct implications on corporate operations, specifically all activities for managing SCAs forests and responsibly harvesting wood from them.

The goal of the current initiative is to:

enable SCA in delivering precise and well documented biodiversity conservation as part of day-to-day forest management operations.

This goal includes the following aspects:

- **Higher precision in conservation measures:** Conservation measures in SCAs forest management and field operations have intensified over the past 25 years following establishment of the current Forestry Act of 1994. Based on expert knowledge and science, field applications appear to have been largely effective, with reference to continuously updated official statistics on forests. There is, however, room for improvement by connecting specific conservation needs as expressed by, e.g., the Red List. Through this initiative, we expect a closer connection between forest management practices and documented conservation needs.

- **Improved target setting:** Timber management and wood harvesting have over the past decades benefitted from the information age and "big data" for developing more efficient business processes. At the same time, we have not experienced the same developments in conservation approaches, even though knowledge on biological diversity, including observation and population data, have improved considerably. As a consequence, conservation targets and achievements are still often expressed in generic quantities of set-aside land areas. We expect the initiative to lead to more sophisticated target setting on all levels.

- Measuring and reporting: Biological diversity is identified as a corporate sustainability priority for SCA. This requires accurate measurement and reporting of status and progress. Customers, investors and the wider public increasingly expect credible, comprehensive and comprehensible information. Communication needs to be (a) based on on-the ground data and comprehensive analyses, (b) geared for a broader audience than forest experts, and (c) transparent.

- Partnerships: The debate on forestry in Sweden has in recent years, as in other places, seen an escalation of conflicting views between on one hand those arguing for active forest management with extensive wood harvesting, and on the other proponents for more nature conservation and less forestry. At the same time, almost everyone engaged in the debate agrees that there needs to be a sound balance between these objectives, as expressed also by existing forest management certification schemes. Stronger partnerships that bridge different interest groups are called for, taking a holistic view on forest management goals. As part of this initiative an enhanced stakeholder dialogue is sought on how to best ensure biodiversity in actively managed forests.

Swedish forestry – the context

From an international perspective Swedish forestry stands out in several ways.

- For centuries, the forest, literally, fueled the development of the Swedish economy – to a great extent as a means for the mining and steel industry. Gradually, from the early 19th century, the forest industry developed into a major sector of its own, generating many jobs and large export revenues. Gradually, also, the forest resources were overharvested and became degraded. Grave concerns were raised over the diminishing supply of wood.
- Since early 1900s, legislation, national policies and a long-standing partnership between landowners, corporations and the state have ensured that harvested stands are regenerated and forest resources restored. As a result, forest growth, the standing stock, as well as timber harvests have all doubled over the past century. Swedish forests are now supplying large quantities of renewable wood to our society while at the same time acting as a steady, significant net sink of atmospheric carbon;
- With less than one per cent of the global forest area and situated largely in the low productive boreal region, Sweden provides 10 per cent of global trade in forest products thanks to investments in logistics, efficient industry value chains and innovation.
- Most of the forestland is privately owned, either as family forest estates or by corporations. About 25 per cent is owned by public sector entities, which is a smaller share than in most forest-rich countries.
- Current forestry legislation of 1994 (Skogsstyrelsen, 2020) stipulates that productive and nature conservation goals should have equal weight. As a consequence, conservation measures and forest reserves have increased compared to preceding decades. Data from the national forest inventory show that critical factors for biological diversity, such as dead wood, old stands and tree species diversity, are now increasing, albeit from low levels due to earlier stronger focus on wood production.

Despite the above success story, Swedish forestry is today subject to considerable political debate over perceived trade-offs between timber production and nature conservation. Besides criticism from conservation NGO's, also official reports from the Swedish Nature Protection Agency conclude that forest environment targets are not met, with reference to national commitments to international agreements including the Aichi targets of the CBD, and the EU natural habitat directive (Naturvårdsverket, 2020b; Skogsstyrelsen, 2019). This contradiction was highlighted in a recent report (Swedish Forest Industries, 2021).

With new international arrangements in pipeline, such as the ambition to protect 30 per cent of land areas, the political conflicts over how to use the forest are likely to persist. Policy discourses at the EU level, such as the EU Biodiversity Strategy, the EU Green Deal, the Taxonomy for sustainable investment and the EU strategy on forests relate directly to the forest debate. In October 2020, the Swedish Forest Industries released a position paper on the EU Biodiversity Strategy highlighting that the forest-based sector is key for achieving sustainability ambitions, and that active forest management and biodiversity conservation in forests can be simultaneously achieved (Swedish Forest Industries, 2020).

Coming back to current forest legislation in Sweden, a key question is how to best combine timber production and nature conservation goals – under the overall umbrella of sustainable development.

SCA forest management and operations

SCAs forest management has largely followed the overall Swedish developments. From a situation in mid 1900s with degraded forests, considerable investments have been made to increase forest growth, mainly through active replanting measures after harvesting. SCA has also introduced lodgepole pine (*Pinus contorta*), a species native to North America, to boost forest growth on part of its land. The investments have paid off, with current annual growth standing at 10.5 million m³ stem wood in 2020 with a net annual increase of the standing stock of 3.2 million m³ (Fig 1).



Figure 1. SCA Forest growth and standing volume in 2020. Source: SCA Annual Report 2020.

Since early 1990s, nature conservation has increasingly been a priority in SCAs forest management. Several measures are applied at different geographic scales:

- Ecological Landscape Planning covering the entire land area is the backbone of conservation efforts and identifies forests with the highest conservation values, which currently comprise 162,000 ha of productive forest land, as well as 600,000 ha of low-productive land that are not subject to timber harvesting;
- Retention forestry, where conservation measures are applied in all felling operations, ensuring that smaller areas with specific conservation values are preserved, including wet zones, older trees and tree groups, and deciduous-dominated sections. On average, critical habitats, substrates and structures are retained on 10 per cent of the harvest tract area. In addition, further environmental protection measures are made to enhance social and cultural values.
- Managing for specific conservation values, e.g., where a continuous crown cover or other continuity factors are deemed important. Such priorities are identified on 60,000 ha of productive forestland, where alternatives to regular retention forestry are to be applied.
- Active measures, such as controlled burning and restoration of wetlands.

As for Swedish forestry in general, certification is an important mechanism to promote responsible forest management. SCA forest management meets international benchmarks and works actively with the Forest Stewardship Council (FSC®) and the Programme for the Endorsement of Forest Certification (PEFC™). SCA forest management and wood procurement is certified according to FSC® since 1999 and to PEFC™ since 2011.

Conservation ambition, approaches and methods have continuously improved over the past decades. However, with increasing regulatory requirements, as well as expectations from customers, consumers and investors, in particular on transparency and reporting, the current initiative aims to take biodiversity conservation to the next level.

Connecting the Red List to SCAs forest management

About the Swedish Red List 2020

The IUCN Red List of Threatened Species (IUCN, 2020) is a well-known global information source on extinction risk status of animal, fungus and plant species. It is a de facto standard for informing and catalyzing action for biodiversity conservation and was instrumental for the recent global assessment by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019). Out of 120,000 recorded species globally, the list contains over 32,000 species classified as threatened.

The Swedish Red List (SLU, 2020a) is a corresponding database covering species occurring in Sweden and assessing threats within the Swedish geography. It uses the methodology, criteria and classifications established by the IUCN global list. The Swedish Red List is a useful tool for making conservation prioritizations, but it has no juridical status. It is produced by the SLU Swedish Species Information Centre, then ratified by the Swedish Environmental Protection Agency and the Swedish Agency for marine and Water Management.



Each species in the Red List is categorized according to the assessed extinction risk (Fig. 2)

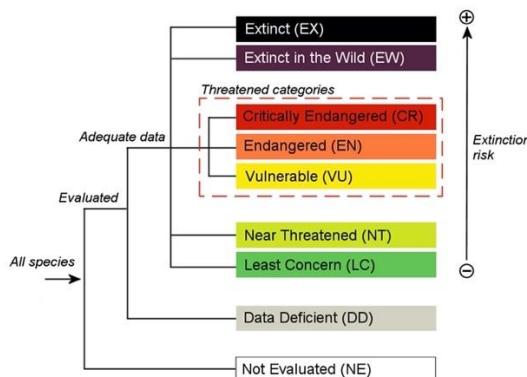


Figure 2. IUCN Red List categories

The Swedish Red List issued their five-yearly update in April 2020, which was very timely with respect to the current SCAs initiative. The 2020 edition contains 21,740 species of which 2,249 were considered threatened (categories CR, EN or VU).

SCAs species commitment

One central question for SCA is how many of the threatened species in the Red List are present on SCAs land and are negatively affected by forestry operations? These would be the species that require special attention and be considered **SCAs species commitment**. But which are they?

To answer that question, the Swedish Red List was analyzed in depth. The Swedish Species Information Centre at SLU extracted a comprehensive subset from the Red List constituting about 1000 species. Available observation data for each species (SLU, 2020b) on and off SCAs land were added to the database, as well as detailed data on the types of habitat and conditions required by each species (SLU, 2020c).

From this subset, species were excluded if any of these conditions were met:

- they belonged to IUCN category DD, or
- they were not dependent on forest habitats, or

- they did not have any established population in the SCA region (the 4 northernmost administrative regions of Sweden), or
- less than 10% of Swedish observations had been made in the SCA region, or
- there has been no or very few and marginal observations on SCAs land.

After further manual review of detailed documentation for each species and consultations with experts on specific species groups, 203 species were identified as SCAs species commitment (Table 1, Annex 1, Figure 3).

Table 1. Organism groups and number of species identified in each within SCAs Species Commitment

Organism group (Swedish)	Organism group	n species
Blötdjur	Molluscs	1
Fåglar	Birds	10
Fjärilar	Butterflies	5
Halvvingar	Hemiptera ("true bugs")	2
Kärväxter	Vascular plants	10
Kräftdjur	Crustaceans	1
Lavar	Lichens	41
Mossor	Mosses	12
Skalbaggar	Beetles	25
Steklar	Hymenoptera	1
Storsvampar	Large fungi	90
Tvåvingar	Diptera	5
Total		203

In other words: Out of a total of c. 50,000 known species in Sweden, about 7,400 are species found in forests in the Northern half of Sweden. 982 of these are on the Red List, of which 806 require a forest habitat and 685 are affected negatively by forestry operations. Out of these, 203 are confirmed to have significant populations on SCAs land and are therefore referred to as the SCA species commitment.

Securing access to habitats for vulnerable species

Vulnerable species need habitats that are becoming less common in an actively managed forest landscape. SCA has identified 12 specific habitats that, based on stand age, tree continuity, availability of dead wood, presence of deciduous trees, fire sites and other factors are characterizing natural ecosystems in the region. These habitats, which are particularly important for the 203 species included in our species commitment, are preserved and enhanced on SCA land.

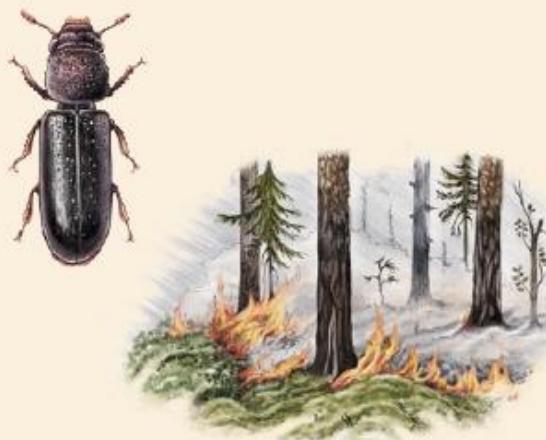
SCA has created programs and targets to ensure access to all of the habitats that are critical to these 203 species. SCA will report the progress of these programs and whether the established targets are achieved.

Examples from SCA's species commitment:



**Coral tooth fungus
(*Hericium coralloides*)**

Habitat: Grows on old, fallen, heavily decomposed deciduous trees. The species requires a mainly deciduous stand that is left to become very old. Over time, such stands will slowly but surely turn into spruce forests. New deciduous stands must be actively created to form such habitats in a century from now.



**Horned powderpost beetle
(*Stephanopachys linearis*)**

Habitat: This insect lays eggs in the fire damaged bark on older pine trees following a forest fire. The larvae feed on the layer between living and dead tissue. The species requires forest fires that damage older standing pine trees.



**Old man's beard
(*Usnea longissima*)**

Habitat: Requires old coniferous natural forests with a continuity of trees that is undisturbed by fire.

Figure 3. Three species out of the 203 in SCAs species commitment. Source: SCA Annual report 2020.

Habitat requirements

Practical methods and instructions are needed for operationalizing the species commitment in SCAs day-to-day operations. For this reason, habitat requirements for each of the 203 species were analyzed and a consolidated set of critical habitats was defined, consisting of 11 specific habitat categories and two additional subcategories. Following known requirements, each species could then be linked to one or several of these critical habitats (Table 2). The species-by-species links to habitat categories are found in Annex 1.

Table 2. Identified habitat categories critical to the 203 identified species that require specific conservation measures.

Habitat category	# of species linked
1. Coniferous forest with long-term continuity of living trees	40
2. Coniferous forest with long-term continuity of dead wood	87
3. Open pine forest on sandy soils with continuity of living trees	16
4. Coniferous or mixed coniferous/deciduous forest on nutrient-rich soils with continuity of living trees	15
5. Pine forest with continuity of dead wood	28
5b. low-productive forest due to shallow soil / dry conditions	10
6. Forest with predominantly deciduous species and presence of dead wood	40
7. Forest recently impacted by fire	10
8. Forest on humid or wet soils, often adjacent to streams and lakes	41
8b. low-productive forest due to wet conditions	16
9. Living and dead trees with high exposure to sunlight	10
10. Species have other habitat needs that require location-specific measures	11
11. Detailed information on habitat requirements are missing	4
Total (note: a species can be connected to >1 habitat category)	328

Forest management implications

With the above set of habitat requirements for the 203 identified redlisted species, SCA is able to strengthen its approach to planning, harvesting operations and follow-up to ensure that concerned habitats are preserved/enhanced and documented. This would involve the following existing management approaches:

1. The Ecological Landscape Planning process, identifying and classifying set-aside areas of productive forestland that with high conservation values, critical habitats and areas where adapted harvesting methods are to be applied to maintain or create habitats.
2. Retention forestry where wood harvesting includes smaller-scale conservation measures for preserving or enhancing critical habitats, substrates and structures;

3. Low-productive land (impediments) which, according to the Swedish Forestry Act, fall outside areas considered for wood harvests. These forests often have a substantial tree cover and therefore contain a considerable extent of critical habitats are therefore included in the documentation.

Extent of habitats for redlisted species 2020

Current extent of identified critical habitats on SCAs land are compiled in Table 3.

Table 3. Extent of critical habitats set-aside, assigned for alternative harvesting methods, within forest operations tracts and on low-productive land

Habitat category	Identified habitat categories across SCAs land			
	Total set-aside areas and areas for alternative forest management			Proportions of current harvesting tracts
	Productive forest land		Non-productive land	
	Set-aside areas	Alternative management	Productive forest land	
	ha	ha	ha	% av areal
1. Coniferous forest with long-term continuity of living trees	38 594	14 601		0.70
2. Coniferous forest with long-term continuity of dead wood	38 248	4 410		0.74
3. Open pine forest on sandy soils with continuity of living trees	695	1 648		n.s.
4. Coniferous or mixed coniferous/deciduous forest on nutrient-rich soils with continuity of living trees	543	200		0.04
5. Pine forest with continuity of dead wood	27 652	15 255		n.s.
5b. low-productive forest due to shallow soil / dry conditions			126 025	
6. Forest with predominantly deciduous species and presence of dead wood	16 724	5 669		0.22
7. Forest recently impacted by fire	1 409	442		
8. Forest on humid or wet soils, often adjacent to streams and lakes	36 990	16 451		7.97
8b. low-productive forest due to wet conditions			53 863	
9. Living and dead trees with high exposure to sunlight				0.80

10. Species have other habitat needs that require location-specific measures	1 202	539		
Total	162 057 ha	59 215 ha	179 888 ha	10,5%

Two roundtable discussions

In December 2020, SCA organized two roundtables for discussing findings and implications of the above analysis. The purpose was to gain insights from a wider set of interest groups and identify challenges and opportunities with the approach.

The first roundtable involved an international group of investors, downstream manufacturing corporations, conservation and certification organizations, and researchers – in all 12 participants. The initiative was appreciated and seen as innovative, not least given that international discourse on forests is often focused on avoiding deforestation and/or increasing carbon storage. The opportunities of combining financial returns in forestry with conservation benefits was viewed as an increasingly necessary feature for investors and retailors. Building on the Red List as a direct tool for conservation in forest management was commended as it is a well understood and authoritative knowledge base. The inherent complexity and geographic specificity make biodiversity difficult to incorporate in more general investment decisions or certification standards in meaningful ways. For this reason, the effort to combine high-resolution management approaches related to redlisted species with big-picture assessment and communication was considered very valuable.

The second roundtable was focused on the forest management situation on the ground in the Northern half of Sweden where SCAs operations are located. It involved 18 participants representing conservation organizations, local and regional authorities, forestry corporations and universities. This was a more detailed discussion on the methodology which resulted in several suggestions for improvements. In short:

Strengths:

- Ambitious initiative that takes a lead in how forest management can further integrate conservation ambitions;
- The method is transparent and fact based - using detailed knowledge on species and habitat requirements.

Weaknesses:

- Species-level data on occurrence, habitat requirements and dynamics are still insufficient to well serve the operational ambitions;
- Too much focus on redlisted species can take attention away from broader perspectives of biodiversity.

Opportunities:

- Improved precision in conservation, provided analyses and practices develop further and take in new knowledge as well as the wider landscape beyond SCAs land;
- Forest management practices and monitoring can evolve to increasingly meet conservation targets.

Overall, both roundtable discussions provided an opportunity for different interest groups to meet and constructively discuss biodiversity ambitions on a factual basis. Continued partnerships and dialogue are an essential part of SCAs current initiative.

The road ahead

The approach and results above represent steps towards meeting SCA ambitions with respect to biodiversity conservation. The following continued developments are anticipated:

Internal operations

As new and improved conservation data becomes available, these should be used for improving forest management on the ground. While conservation measures have been applied throughout SCAs operations for decades, renewed efforts and methodologies can improve precision and the overall performance. Revision of operations' manuals as well as training of involved staff and contractors are important in this context. New approaches to follow-up surveys and evaluations of field operations can help ensure continued learning and effectiveness of measures. Integrated analyses forest developments over time can enhance strategic corporate decisions on future forest management.

Improving methodology and data generation/input

Clearly, available overall knowledge and data on biodiversity is not satisfactory. This appears to be a general problem in predicting developments, extinction risks and impacts of land use, not only in forestry and not only in Sweden. Performance of biodiversity conservation in SCAs operations would therefore be helped through, *inter alia*

- More comprehensive and quality-controlled inventories and observation data for redlisted species;
- More extensive use of remote sensing, especially radar technology, to improve efficiency in field inventories;
- Long-term research on impacts (negative and positive) on and dynamics of (redlisted) species in the managed forest landscape;
- Systematic reviews of conservation science to verify existing knowledge.

Partnerships

Partnerships will be key for continued enhancement of biodiversity conservation in forestry, bringing together expertise on biological diversity, as well as scientists, forest managers, investors and business strategists. An important factor for successful dialogue is to recognize that the goal of biodiversity conservation is

shared among these interest groups. SCA intends to take an active role in promoting inclusive partnerships.

Reporting

Status and developments of biodiversity on SCAs land, as well as progress in actions taken to ensure successful conservation will be reported in SCAs Annual Reports - the most comprehensive tool for communication to all stakeholders in SCA - starting with the year 2020 (report published in early 2021). The above results on SCAs Species Commitment and extent of habitats critical for these redlisted species will be a centerpiece of the 2020 report.

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Annex 1. Species listed as SCAs Species Commitment

The list below is the result of analyses of the Swedish Red List as described in the main document. It contains 203 species considered threatened by active forest management and present on SCAs land. Hyperlinks for species names refer to additional facts at (SLU, 2020c).

Habitat category numbers refer to:

Habitat category	# of species linked
1. Coniferous forest with long-term continuity of living trees	40
2. Coniferous forest with long-term continuity of dead wood	87
3. Open pine forest on sandy soils with continuity of living trees	16
4. Coniferous or mixed coniferous/deciduous forest on nutrient-rich soils with continuity of living trees	15
5. Pine forest with continuity of dead wood	28
5b. low-productive forest due to shallow soil / dry conditions	10
6. Forest with predominantly deciduous species and presence of dead wood	40
7. Forest recently impacted by fire	10
8. Forest on humid or wet soils, often adjacent to streams and lakes	41
8b. low-productive forest due to wet conditions	16
9. Living and dead trees with high exposure to sunlight	10
10. Species have other habitat needs that require location-specific measures	11
11. Detailed information on habitat requirements are missing	4
Total (note: a species can be connected to >1 habitat category)	328

#	Species	Swedish common name	Organism group	Family	Red List category	Habitat(s) linked to species												
						1	2	3	4	5	5b	6	7	8	8b	9	10	11
1	Accipiter gentilis	duvhök	Fåglar	Accipitridae	NT	x	x											
2	Acmaeops marginatus	kantad kulhalsbock	Skalbaggar	Cerambycidae	EN					x			x					
3	Acolium karelicum	liten sotlav	Lavar	Caliciaceae	VU	x	x							x				

#	Species	Swedish common name	Organism group	Family	Red List category	Habitat(s) linked to species											
						1	2	3	4	5	5b	6	7	8	8b	9	10
4	Agathidium discoideum	suturfläckad mycelbagge	Skalbaggar	Leiodidae	VU							x					
5	Agathidium pallidum	NULL	Skalbaggar	Leiodidae	VU							x					
6	Albatrellus subrubescens	lammticka	Storsvampar	Albatrellaceae	VU	x	x										
7	Alectoria sarmentosa	garnlav	Lavar	Parmeliaceae	NT	x	x						x	x			
8	Alloclavaria purpurea	luddfingersvamp	Storsvampar	Hymenochaetales, genera incertae sedis	NT	x	x						x				
9	Amiota rufescens	NULL	Tvävingar	Drosophilidae	NT												x
10	Amiota subtusradiata	NULL	Tvävingar	Drosophilidae	NT												x
11	Amylocorticium subincarnatum	rosa jodskinn	Storsvampar	Amylocorticales, genera incertae sedis	EN		x										
12	Amylocystis lapponica	lappticka	Storsvampar	Dacryobolaceae	VU		x										
13	Anastrophyllo hellerianum	vedtrappmossa	Mossor	Jungermanniaceae	NT		x										
14	Anomoporia bombycina	isabellporing	Storsvampar	Amylocorticales, genera incertae sedis	EN		x										
15	Anomoporia kamtschatica	vaddporing	Storsvampar	Amylocorticales, genera incertae sedis	NT		x			x			x				
16	Anthoporia albobrunnea	fläckporing	Storsvampar	Fomitopsidaceae	VU				x	x							
17	Antrodia infirma	urskogsporing	Storsvampar	Fomitopsidaceae	EN				x	x							
18	Antrodia mellita	honungsticka	Storsvampar	Fomitopsidaceae	VU							x					
19	Antrodia primaeva	urskogsticka	Storsvampar	Fomitopsidaceae	EN			x									
20	Antrodia pulvinascens	veckticka	Storsvampar	Fomitopsidaceae	NT							x					
21	Aporpium canescens	narrporing	Storsvampar	Auriculariales, genera incertae sedis	VU		x										
22	Aquila chrysaetos	kungsörn	Fåglar	Accipitridae	NT	x	x									x	
23	Aradus angularis	spetshörnad barkskinnbagge	Halvvingar	Aradidae	VU							x					
24	Aradus signaticornis	vithornad barkskinnbagge	Halvvingar	Aradidae	EN							x					
25	Arthonia incarnata	mörk rödprick	Lavar	Arthoniaceae	VU	x	x										
26	Artomyces cristatus	liten kandelabersvamp	Storsvampar	Auriscalpiaceae	CR				x								
27	Astacus astacus	flodkräfta	Kräftdjur	Astacidae	CR											x	
28	Asterodon ferruginosus	stjärntagging	Storsvampar	Hymenochaetaceae	NT		x					x					

#	Species	Swedish common name	Organism group	Family	Red List category	Habitat(s) linked to species											
						1	2	3	4	5	5b	6	7	8	8b	9	10
29	Astragalus penduliflorus	smällvedel	Kärlväxter	Fabaceae	VU											x	
30	Aurantiporus priscus	NULL	Storsvampar	Meruliaceae	EN		x										
31	Bacidia rosellizans	blek lundlav	Lavar	Ramalinaceae	NT							x					
32	Bankera fuligineoalba	talltaggsvamp	Storsvampar	Bankeraceae	NT		x			x							
33	Bankera violascens	grantaggsvamp	Storsvampar	Bankeraceae	NT			x									
34	Baptria tibiale	trolldrvemätare	Fjärilar	Geometridae	EN										x		
35	Bius thoracicus	gransvartbagge	Skalbaggar	Tenebrionidae	VU		x					x					
36	Boletopsis grisea	tallgråticka	Storsvampar	Bankeraceae	VU			x			x						
37	Bryoria nadvornikiana	violettgrå tagellav	Lavar	Parmeliaceae	NT	x	x						x	x			
38	Byssomerulius albostramineus	laxgröppa	Storsvampar	Irpicaceae	VU					x							
39	Calicium denigratum	blanksvart spiklav	Lavar	Caliciaceae	NT				x	x				x			
40	Calypogeia suecica	vedsäckmossa	Mossor	Calypogeiacae	VU		x							x			
41	Calypso bulbosa	norna	Kärlväxter	Orchidaceae	VU			x									
42	Carbonicola anthracophila	kolflarnlav	Lavar	Carbonicolaceae	NT				x			x			x		
43	Carbonicola myrmecina	mörk kolflarnlav	Lavar	Carbonicolaceae	NT				x								
44	Caphoborus rossicus	fårad bastborre	Skalbaggar	Curculionidae	VU	x	x								x		
45	Catathelasma imperiale	kejsarskivling	Storsvampar	Biannulariaceae	VU				x								
46	Cephalozia macounii	vedtrådmossa	Mossor	Cephaloziaeae	CR		x										
47	Cetrelia olivetorum	jättesköldlav	Lavar	Parmeliaceae	CR										x		
48	Chaenotheca gracilenta	smalskaftslav	Lavar	Coniocybaceae	VU	x	x						x				
49	Chaenotheca gracillima	brunpudrad nållav	Lavar	Coniocybaceae	NT	x	x						x				
50	Chaenotheca laevigata	nordlig nållav	Lavar	Coniocybaceae	NT	x	x						x				
51	Chaenotheca subroscida	vitgryning nållav	Lavar	Coniocybaceae	NT	x	x										
52	Chaenothecopsis fennica	blågrå svartspik	Lavar	Mycocaliciaceae	NT				x	x				x		x	
53	Chaenothecopsis nana	liten svartspik	Lavar	Mycocaliciaceae	NT	x	x										
54	Chaenothecopsis viridialba	vitskaftad svartspik	Lavar	Mycocaliciaceae	NT	x	x							x	x		
55	Chaetodermella luna	vitplätt	Storsvampar	Gloeophyllaceae	NT				x	x							

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						1	2	3	4	5	5b	6	7	8	8b	9	10
56	Cinna latifolia	sötgräs	Kärlväxter	Poaceae	NT								x			x	
57	Cis ruginosus	NULL	Skalbaggar	Ciidae	NT							x					
58	Cladonia parasitica	dvärgbägarlav	Lavar	Cladoniaceae	NT				x	x							
59	Clavariadelphus truncatus	flattoppad klubbsvamp	Storsvampr	Clavariadelphaceae	NT	x	x										
60	Collema curtisporum	liten aspgelélav	Lavar	Collemataceae	VU							x					
61	Collema furfuraceum	stiftgelélav	Lavar	Collemataceae	NT							x					
62	Collema nigrescens	läderlappslav	Lavar	Collemataceae	VU							x					
63	Collema subflaccidum	gryning gelélav	Lavar	Collemataceae	EN							x					
64	Collema subnigrescens	aspigelélav	Lavar	Collemataceae	VU							x					
65	Corticaria interstitialis	NULL	Skalbaggar	Latridiidae	NT		x					x					
66	Corticeus fraxini	tallbarksartbagge	Skalbaggar	Tenebrionidae	VU		x			x							
67	Cortinarius agathosmus	vitterspindling	Storsvampr	Cortinariaceae	NT			x									
68	Cortinarius aureofulvus	gyllenspindling	Storsvampr	Cortinariaceae	VU			x									
69	Cortinarius aureopulverulentus	puderspindling	Storsvampr	Cortinariaceae	NT			x									
70	Cortinarius caesiostamineus s. lat.	blekspindling	Storsvampr	Cortinariaceae	NT			x									
71	Cortinarius pinophilus	NULL	Storsvampr	Cortinariaceae	NT		x										
72	Crustoderma dryinum	rostskinn	Storsvampr	Polyphorales, genera incertae sedis	VU		x										
73	Cynodontium fallax	praktklippstuss	Mossor	Rhabdoweisiaceae	NT									x			
74	Cyrtopogon lapponicus	lappprovfluga	Tvåvingar	Asilidae	EN				x								
75	Cystostereum murrayi	doftskinn	Storsvampr	Cystostereaceae	NT		x										
76	Danosoma fasciatum	NULL	Skalbaggar	Elateridae	NT		x										
77	Denticollis borealis	svart ögonknäppare	Skalbaggar	Elateridae	NT							x	x				
78	Dichomitus squalens	skorpticka	Storsvampr	Polyporaceae	EN				x								
79	Diplazium sibiricum	ryssbräken	Kärlväxter	Athyriaceae	VU										x		
80	Diplomitoporus crustulinus	sprickporing	Storsvampr	Polyphorales, genera incertae sedis	VU		x										
81	Dipogon vechti	tallvägstekel	Steklar	Pompilidae	NT		x		x						x		

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						1	2	3	4	5	5b	6	7	8	8b	9	10	11
82	Dryocopus martius	spillkråka	Fåglar	Picidae	NT		x			x						x	x	
83	Eblisia minor	sexstrimmig plattstumpbagge	Skalbaggar	Histeridae	NT							x						
84	Elatobia fuliginosella	tallbarksmal	Fjärilar	Tineidae	VU			x										
85	Emberiza rustica	videsparv	Fåglar	Emberizidae	NT								x	x				
86	Epipogium aphyllum	skogsfru	Kärväxter	Orchidaceae	NT				x					x				
87	Evernia divaricata	ringlav	Lavar	Parmeliaceae	VU	x	x				x		x	x	x			
88	Evernia mesomorpha	grenlav	Lavar	Parmeliaceae	VU	x	x			x			x	x	x			
89	Evodinus borealis	mindre frågeteckenbock	Skalbaggar	Cerambycidae	VU	x	x							x				
90	Fomitopsis rosea	rosenticka	Storsvampar	Fomitopsidaceae	NT		x											
91	Galium triflorum	myskmåra	Kärväxter	Rubiaceae	NT			x						x				
92	Gelatoporia subvermispora	kristallporing	Storsvampar	Gelatoporiaceae	NT	x	x					x						
93	Gloeophyllum carbonarium	kolticka	Storsvampar	Gloeophyllaceae	EN				x			x		x				
94	Gloeoporus pannocinctus	finporing	Storsvampar	Irpicaceae	VU							x						
95	Gloiodon strigosus	borsttagging	Storsvampar	Auriscalpiaceae	VU							x		x				
96	Glyceria lithuanica	glesgröe	Kärväxter	Poaceae	VU			x						x				
97	Goodyera repens	knärot	Kärväxter	Orchidaceae	VU	x	x											
98	Gyalecta friesii	skuggkraterlav	Lavar	Gyalectaceae	VU	x	x						x					
99	Gyromitra splendida	långfotad murkla	Storsvampar	Discinaceae	VU		x						x					
100	Hapalopilus aurantiacus	NULL	Storsvampar	Polyphorales, genera incertae sedis	NT				x									
101	Haploporus odorus	dofticka	Storsvampar	Polyphoraceae	VU					x			x	x				
102	Hericium coralloides	koralltaggsvamp	Storsvampar	Hericiaceae	NT						x							
103	Herzogiella turfacea	platt spretmossa	Mossor	Plagiotheciaceae	NT						x							
104	Heterodermia speciosa	elfenbenslav	Lavar	Physciaceae	VU	x	x											
105	Hirtodrosophila oldenbergi	NULL	Tvåvingar	Drosophilidae	NT											x		
106	Hyalodon piceicola	barrgråtagging	Storsvampar	Auriculariales, genera incertae sedis	VU		x											
107	Hydnellum aurantiacum	orange taggsvamp	Storsvampar	Bankeraceae	NT	x	x				x							
108	Hydnellum caeruleum	blå taggsvamp	Storsvampar	Bankeraceae	NT	x	x			x								

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						1	2	3	4	5	5b	6	7	8	8b	9	10
109	Hydnellum gracilipes	smalfotad taggsvamp	Storsvampar	Bankeraceae	VU			x			x						
110	Hygrophoropsis olida	smultronkantarell	Storsvampar	Hygrophoropsidaceae	VU				x								
111	Inonotopsis subiculosa	tajgaporing	Storsvampar	Hymenochaetaceae	VU		x										
112	Lactarius musteus	tallriska	Storsvampar	Russulaceae	NT			x			x						
113	Lactarius olivinus	oliviniska	Storsvampar	Russulaceae	NT	x	x							x	x		
114	Laemophloeus muticus	svart plattbagge	Skalbaggar	Laemophloeidae	VU							x					
115	Laurilia sulcata	tajgaskinn	Storsvampar	Echinodontiaceae	VU		x						x				
116	Lecanora impudens	allékantlav	Lavar	Lecanoraceae	VU											x	
117	Letharia vulpina	varglav	Lavar	Parmeliaceae	NT				x	x				x			
118	Lobaria pulmonaria	lunglav	Lavar	Lobariaceae	NT						x	x					
119	Lobaria scrobiculata	skrovellav	Lavar	Lobariaceae	NT						x	x					
120	Lophozia ascendens	liten hornflikmossa	Mossor	Jungermanniaceae	VU		x						x				
121	Lophozia longiflora	vedflikmossa	Mossor	Jungermanniaceae	NT		x										
122	Lycaena helle	violett guldvinge	Fjärilar	Lycaenidae	EN											x	
123	Margaritifera margaritifera	flodpärlmussla	Blötdjur	Margaritiferidae	EN								x				
124	Melandrya dubia	djupsvart brunbagge	Skalbaggar	Melandryidae	EN					x	x				x		
125	Microcalicum ahneri	kortskäftad ärgspik	Lavar	Microcaliciaceae	NT				x	x							
126	Myricaria germanica	klådris	Kärväxter	Tamaricaceae	NT											x	
127	Neckera pennata	aspfjädermossa	Mossor	Neckeraceae	VU						x						
128	Nothorhina muricata	reliktbock	Skalbaggar	Cerambycidae	NT									x			
129	Ochrolechia alboflavescens	halmgul örlav	Lavar	Ochrolechiaceae	NT	x	x							x			
130	Odonticium romellii	nordtagging	Storsvampar	Hymenochaetales, genera incertae sedis	NT					x							
131	Onnia leporina	harticka	Storsvampar	Hymenochaetaceae	NT		x										
132	Osmoporus protractus	tallstocksticka	Storsvampar	Gloeophyllaceae	VU				x	x				x			
133	Osteina undosa	vågticka	Storsvampar	Dacryobolaceae	VU		x						x				
134	Pannaria conoplea	grynlav	Lavar	Pannariaceae	EN							x					
135	Peltis grossa	större flatbagge	Skalbaggar	Trogossitidae	NT	x					x			x		x	

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						1	2	3	4	5	5b	6	7	8	8b	9	10	11
136	Perenniporia subacida	gräddticka	Storsvampar	Polyporaceae	VU		x				x			x				
137	Phellinus chrysoloma	granticka	Storsvampar	Hymenochaetaceae	NT		x											
138	Phellinus ferrugineofuscus	ullticka	Storsvampar	Hymenochaetaceae	NT		x											
139	Phellinus nigrolimitatus	gränsticka	Storsvampar	Hymenochaetaceae	NT		x											
140	Phellinus pini	tallticka	Storsvampar	Hymenochaetaceae	NT					x	x			x				
141	Phelodon secretus	tajgataggsvamp	Storsvampar	Bankeraceae	VU		x											
142	Phlebia centrifuga	rynkskinn	Storsvampar	Meruliaceae	VU		x											
143	Phlebia serialis	kådvaxskinn	Storsvampar	Meruliaceae	NT					x								
144	Phlebia subulata	vitt vaxskinn	Storsvampar	Meruliaceae	VU		x											
145	Phryganophilus ruficollis	rödhalsad brunbagge	Skalbaggar	Melandryidae	EN		x				x				x			
146	Picoides tridactylus	tretåig hackspett	Fåglar	Picidae	NT		x							x	x			
147	Piloporia sajanensis	lämmelporing	Storsvampar	Polyporales, genera incertae sedis	EN		x											
148	Pinicola enucleator	tallbit	Fåglar	Fringillidae	VU	x	x											
149	Platismatia norvegica	norsk näverlav	Lavar	Parmeliaceae	VU	x	x							x	x			
150	Poecile montanus	talltita	Fåglar	Paridae	NT		x					x						
151	Polyporus pseudobetulinus	vit aspticka	Storsvampar	Polyporaceae	VU							x						
152	Postia lateritia	lateritticka	Storsvampar	Dacylobolaceae	VU					x								
153	Pseudographis pinicola	gammelgransskål	Storsvampar	Triblidiaeae	NT	x	x							x	x			
154	Pulsatilla vernalis	mosippa	Kärväxter	Ranunculaceae	EN											x		
155	Pytho kolwensis	större barkplattbagge	Skalbaggar	Pythidae	EN		x											
156	Ramalina sinensis	småflikig brosklav	Lavar	Ramalinaceae	NT						x		x					
157	Ramalina thrausta	trädbrosklav	Lavar	Ramalinaceae	EN	x	x						x					
158	Ramaria boreimaxima	rotfingersvamp	Storsvampar	Ramariaceae	VU			x										
159	Ramaria primulina	NULL	Storsvampar	Ramariaceae	DD											x		
160	Ramaria testaceoflava	gultoppig fingersvamp	Storsvampar	Ramariaceae	NT	x	x											
161	Ramboldia elabens	vedflamlav	Lavar	Ramboldiaceae	NT					x								
162	Rhodonia placenta	laxporing	Storsvampar	Polyporales, genera incertae sedis	VU		x											

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						1	2	3	4	5	5b	6	7	8	8b	9	10
163	Rostania occultata	skorpgelélav	Lavar	Collemataceae	NT							x					
164	Russula olivina	olivinkremla	Storsvampar	Russulaceae	VU	x	x										
165	Sarcodon fennicus	bitter taggsvamp	Storsvampar	Bankeraceae	VU				x		x						
166	Sarcodon scabrosus	skrovlig taggsvamp	Storsvampar	Bankeraceae	NT			x			x						
167	Sarcodon squamosus	motaggsvamp	Storsvampar	Bankeraceae	NT			x			x						
168	Sarcodon versipellis	brödtaggsvamp	Storsvampar	Bankeraceae	VU	x	x										
169	Sarcosoma globosum	bombmurkla	Storsvampar	Sarcosomataceae	VU			x				x					
170	Scapania apiculata	timmerskapania	Mossor	Scapaniaceae	EN								x				
171	Scapania carinthiaca	mikroskapania	Mossor	Scapaniaceae	EN								x				
172	Scapania glaucocephala	svämskapania	Mossor	Scapaniaceae	EN								x				
173	Sclerophora coniophaea	rödbrun blekspik	Lavar	Coniocybaceae	NT	x	x					x	x				
174	Scytinium fragrans	rosettgelélav	Lavar	Collemataceae	EN							x	x				
175	Sidera lenis	gräddporing	Storsvampar	Hymenochaetales, genera incertae sedis	VU					x	x						
176	Skeletocutis brevispora	ulltickeporing	Storsvampar	Incrustoporiaceae	VU		x										
177	Skeletocutis chrysella	grantickeporing	Storsvampar	Incrustoporiaceae	VU		x										
178	Skeletocutis kuehneri	kilporing	Storsvampar	Incrustoporiaceae	NT		x										
179	Skeletocutis odora	ostticka	Storsvampar	Incrustoporiaceae	VU		x										
180	Skeletocutis stellae	kristallticka	Storsvampar	Incrustoporiaceae	VU		x										
181	Steccherinum collabens	blackticka	Storsvampar	Steccherinaceae	VU		x						x				
182	Stephanopachys linearis	slät tallapuschongbagge	Skalbaggar	Bostrichidae	NT								x				
183	Stephanopachys substriatus	grov tallapuschongbagge	Skalbaggar	Bostrichidae	VU								x				
184	Stereopsis vitellina	spadskinn	Storsvampar	Stereopsidaceae	VU			x									
185	Strix nebulosa	lappuggla	Fåglar	Strigidae	NT	x	x									x	
186	Strix uralensis	slaguggla	Fåglar	Strigidae	NT									x	x		
187	Tetrastes bonasia	järpe	Fåglar	Phasianidae	NT	x	x		x								
188	Tetradontium ovatum	sydlig knappnålsmossa	Mossor	Tetraphidaceae	VU	x	x										
189	Thymalus oblongus	nordlig flatbagge	Skalbaggar	Trogossitidae	VU							x					

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190	Trichoderma nybergianum	rödbrun klubbdyna	Storsvampar	Hypocreaceae	NT				x								
191	Tricholoma apium	lakritsmusseron	Storsvampar	Tricholomataceae	VU			x			x						
192	Tricholoma colossus	jättemusseron	Storsvampar	Tricholomataceae	VU			x			x						
193	Tricholoma matsutake	goliatmusseron	Storsvampar	Tricholomataceae	VU			x			x						
194	Tricholoma roseoacerbum	tallmusseron	Storsvampar	Tricholomataceae	VU			x									
195	Tricholoma sudum	torrmusseron	Storsvampar	Tricholomataceae	VU			x									
196	Trypophloeus asperatus	aspborre	Skalbaggar	Curculionidae	NT							x				x	
197	Upis ceramboides	större svartbagge	Skalbaggar	Tenebrionidae	EN							x	x				
198	Usnea longissima	långskägg	Lavar	Parmeliaceae	VU	x	x						x				
199	Victrix umovii	barrskogslavfly	Fjärilar	Noctuidae	CR	x	x										
200	Xyletinus tremulicola	aspbarkgnagare	Skalbaggar	Ptinidae	NT											x	
201	Xylophagus inermis	nordvedfluga	Tvåvingar	Xylophagidae	EN							x					
202	Zavaljus brunneus	umbrabagge	Skalbaggar	Erotylidae	EN							x					
203	Zygaena osterodensis	smalsprötad bastardsvärmare	Fjärilar	Zygaenidae	NT											x	