

Table S1 List of Central European primeval forest relict species compiled in September 2016. Category (Cat.), substratum guild (G), Inhabitants of (a): old rotten dead wood in a variety of conditions; (f): fresh dead wood; (m): rot holes; (p): fungi on dead wood or fungi-infested dead wood; (s): species using dead wood in other ways (following Schmidl & Bußler 2004) Austria (AT), Switzerland (CH), Czech Republic (CZ), Germany (DE), Hungary (HU), Poland (PL) and Slovakia (SK); period of record: +, after 1965, –, before 1965

Family/Species	Cat.	G	AT	CH	CZ	DE	HU	PL	SK
Rhysodidae									
<i>Omoglymmius germari</i> (Ganglbauer, 1891)	1	a	–		+	–	+	–	+
<i>Rhysodes sulcatus</i> (Fabricius, 1787)	1	a	+		+	–	+	+	+
Histeridae									
<i>Abraeus parvulus</i> Aubé, 1842	2	a	+	+	+	+		+	+
<i>Epierus comptus</i> Erichson, 1834	2	a	+		+	+	+		+
<i>Platylomalus complanatus</i> (Panzer, 1796)	2	a	+		+	–	+	+	+
<i>Platysoma deplanatum</i> (Gyllenhal, 1808)	1	a	–			+		+	
Leiodidae									
<i>Dreposcia umbrina</i> (Erichson, 1837)	1	a	+	–	+	+	+	+	+
Staphylinidae									
<i>Abemus chloropterus</i> (Panzer, 1796)	2	m	+		+		+	–	+
<i>Batrisodes hubenthali</i> Reitter, 1913	2	a		–	+		+	+	+
<i>Bibloporus ultimus</i> Guillebeau, 1892	1	a	+		+	+			+
<i>Bolitochara lucida</i> (Gravenhorst, 1802)	2	p	+	+	+		+	+	+
<i>Euryusa coarctata</i> Märkel, 1844	2	s	+	–	+	+	+		+
<i>Gyrophæna nitidula</i> (Gyllenhal, 1810)	2	p	+		+	+	+	+	+
<i>Hesperus rufipennis</i> (Gravenhorst, 1802)	2	m	+	+	+	+	+	+	+
<i>Lordithon pulchellus</i> (Mannerheim, 1830)	2	p	+		+	+	+	+	+

Family/Species	Cat.	G	AT	CH	CZ	DE	HU	PL	SK
<i>Lordithon speciosus</i> (Erichson, 1839)	2	p	+	+	+	+	+	+	+
<i>Olisthaerus substriatus</i> (Paykull, 1790)	2	a	-		+	+		+	+
<i>Phymatura brevicollis</i> (Kraatz, 1856)	2	a	+		+	+	+	+	+
<i>Quedius infuscatus</i> Erichson, 1840	2	m	+	-	+	+		+	+
<i>Quedius truncicola</i> Fairmaire & Laboulbène, 1856	2	m	-	+	+	+	+	+	+
<i>Sepedophilus binotatus</i> (Gravenhorst, 1802)	2	a	+		+	+	+	+	+
<i>Stenichnus foveola</i> (Rey, 1888)	1	a	+		+	+			+
<i>Tachyusida gracilis</i> (Erichson, 1837)	1	a	-	+	+	+	+	+	+
<i>Thoracophorus corticinus</i> Motschulsky, 1837	2	s	+	+	+	+	+	+	+
<i>Trigonurus mellyi</i> Mulsant, 1847	2	p		+					
Lycidae									
<i>Lopheros lineatus</i> (Gorham, 1883)	2	a						+	
Cleridae									
<i>Dermestoides sanguinicollis</i> (Fabricius, 1782)	2	a	+	+	+	+	+	+	+
Derodontidae									
<i>Derodontus macularis</i> (Fuss, 1850)	2	p	+	-	+	+	-	+	+
Trogositidae									
<i>Calitys scabra</i> (Thunberg, 1784)	1	p	+	-	-	+		-	+
<i>Grynocharis oblonga</i> (Linnaeus, 1758)	2	p	+	+	+	+	+	+	+
<i>Peltis grossa</i> (Linnaeus, 1758)	1	p	+	+	+	+		+	+
<i>Temnochila caerulea</i> (Olivier, 1790)	2	a	+	+	+	-		-	+
Elateridae									
<i>Ampedus auripes</i> (Reitter, 1895)	2	a	+	+	+	+		-	+
<i>Ampedus brunnicornis</i> Germar, 1844	1	m	+	+	+	+		+	

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<i>Ampedus cardinalis</i> (Schiödt, 1865)	1	m	+	+	+	+	+	+	+
<i>Ampedus elegantulus</i> (Schönherr, 1817)	2	a	+	+	+	+	+	+	+
<i>Ampedus melanurus</i> Mulsant & Guillebeau, 1855	2	a	+	+	+	+		+	+
<i>Ampedus quadrisignatus</i> (Gyllenhal, 1817)	1	a	+		+		+		+
<i>Ampedus suecicus</i> Palm, 1976	1	a			+			+	+
<i>Ampedus tristis</i> (Linnaeus, 1758)	2	a	-	+	+	+		+	+
<i>Brachygonus ruficeps</i> (Mulsant & Guillebeau, 1855)	1	m	+	+	+	+	+		+
<i>Cardiophorus gramineus</i> (Scopoli, 1763)	2	a		+	+	+	+	+	+
<i>Crepidophorus mutilatus</i> (Rosenhauer, 1847)	2	m	+	+	+	+	+	+	+
<i>Danosoma conspersum</i> (Gyllenhal, 1808)	1	a		+				+	
<i>Denticollis borealis</i> (Paykull, 1800)	1	a			+	-		+	+
<i>Elater ferrugineus</i> Linnaeus, 1758	2	m	+	+	+	+	+	+	+
<i>Ischnodes sanguinicollis</i> (Panzer, 1793)	2	m	+	+	+	+	+	+	+
<i>Lacon lepidopterus</i> (Panzer, 1800)	1	a	+	+	+	+	+	+	+
<i>Lacon punctatus</i> (Herbst, 1779)	2	a	-	+	+	-	+		+
<i>Lacon querceus</i> (Herbst, 1784)	1	m	+	+	+	+	+	+	+
<i>Limoniscus violaceus</i> (Müller, 1821)	1	m	+		+	+	+	-	+
<i>Megapenthes lugens</i> (Redtenbacher, 1842)	2	m	+	+	+	+	+		+
<i>Podeonius acuticornis</i> (Germar, 1824)	1	m	+	+	+	+	+	+	+
<i>Reitterelater dubius</i> Platia & Cate, 1990	1	m	+	+	+	+	+	+	+
Cerophytidae									
<i>Cerophytum elateroides</i> (Latreille, 1804)	2	a	+	+	+	+	+	-	+
Eucnemidae									
<i>Dirrhagofarsus attenuatus</i> (Mæklin, 1845)	1	a	-		+	+	+	+	+

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<i>Farsus dubius</i> (Piller & Mitterbacher, 1783)	1	a	-	-	+		+	-	
<i>Microrhagus pyrenaicus</i> Bonvouloir, 1872	2	a		+	+	+		+	
<i>Nematodes filum</i> (Fabricius, 1801)	2	a	+			-	+	+	+
<i>Otho sphondyloides</i> (Germar, 1818)	1	a	-				+	+	
<i>Thambus friwaldszkyi</i> Bonvouloir, 1871	1	a	+				+		+
<i>Xylophilus testaceus</i> (Herbst, 1806)	2	a	+		+	+	+	+	+
Buprestidae									
<i>Acmaeodera degener</i> (Scopoli, 1763)	1	f	+	+	+	+	+	-	+
<i>Buprestis splendens</i> Fabricius, 1775	1	a	+			-	-	+	-
<i>Dicerca aenea</i> (Linnaeus, 1766)	2	f	+		-	-	+	+	+
<i>Dicerca alni</i> (Fischer, 1824)	2	f	+	+	+	+	+	+	+
<i>Dicerca berolinensis</i> (Herbst, 1779)	2	f	+	+	+	+	+	+	+
<i>Dicerca furcata</i> (Thunberg, 1787)	1	f	-		+	+		+	+
<i>Dicerca moesta</i> (Fabricius, 1793)	2	f	+	+	+	+		+	+
<i>Eurythyrea austriaca</i> (Linnaeus, 1767)	1	f	+		-	-		+	+
<i>Eurythyrea quercus</i> (Herbst, 1784)	1	f	+	+	+	+	+	+	+
Bothrideridae									
<i>Oxytaemus variolosus</i> (Dufour, 1843)	2	a	+	+	+	+		-	+
<i>Teredus cylindricus</i> (Olivier, 1790)	2	a	+	+	+	+	+	+	+
<i>Teredus opacus</i> Habelmann, 1854	1	a	+	+	+		+	-	+
Cerylonidae									
<i>Philothermus evanescens</i> (Reitter, 1876)	2	a	+		+	+	+	+	+
Rhizophagidae									
<i>Rhizophagus brancsiki</i> Reitter, 1905	2	f	+		+		+	+	+

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Cucujidae									
<i>Cucujus haematodes</i> Erichson, 1845	1	f	+		+	-		+	+
Erotylidae									
<i>Dacne notata</i> (Gmelin, 1790)	1	p	-		+	+	-	+	+
<i>Dacne pontica</i> (Bedel, 1868)	2	p	+				+		+
<i>Triplax collaris</i> (Schaller, 1783)	2	p	+		+	+	+	+	+
<i>Triplax elongata</i> Lacordaire, 1842	1	p	+		+	+	+	+	+
<i>Triplax melanocephala</i> (Latreille, 1804)	1	p		+		+	+		+
<i>Tritoma subbasalis</i> (Reitter, 1896)	2	p	+	+		+		+	+
Cryptophagidae									
<i>Cryptophagus confusus</i> Bruce, 1934	2	m	+	+	+	+	+	+	+
<i>Cryptophagus lysholmi</i> Munster, 1932	2	p	+		+	+			+
<i>Cryptophagus quercinus</i> Kraatz, 1852	2	m	+		+	+	+	+	+
Laemophloeidae									
<i>Cryptolestes abietis</i> (Wankowicz, 1865)	2	f	+	+		+		+	+
<i>Laemophloeus muticus</i> (Fabricius, 1781)	1	f	-	+		+		+	+
Latridiidae									
<i>Corticaria interstitialis</i> Mannerheim, 1844	2	a			+	+		+	
<i>Corticaria lapponica</i> (Zetterstedt, 1838)	2	p	+		+	+	+	+	+
<i>Corticaria lateritia</i> Mannerheim, 1844	2	a	+	+	+	+		+	
<i>Corticaria orbicollis</i> (Mannerheim, 1853)	2	a	+					+	
<i>Latridius brevicollis</i> (Thomson, 1868)	2	a	+		+	+		+	+
Mycetophagidae									
<i>Mycetophagus ater</i> (Reitter, 1879)	2	p	+	+	+	+	+	+	+

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<i>Mycetophagus decempunctatus</i> Fabricius, 1801	2	p	+	+	+	+	+	+	+
Zopheridae									
<i>Colydium filiforme</i> Fabricius, 1792	2	a	+		+	+	+	+	+
<i>Endophloeus marcovichianus</i> (Piller & Mitterpacher, 1783)	2	p	+			i	+		+
<i>Lasconotus jelskii</i> (Wańkiewicz, 1867)	1	f	+					-	
<i>Pycnomerus terebrans</i> (Olivier, 1790)	2	a	+	+	+	+	+	+	+
<i>Rhopalocerus rondanii</i> (Villa & Villa, 1833)	2	a	+	+	+	+	+	+	+
<i>Synchita separanda</i> (Reitter, 1882)	2	a	+	+	+	+	+	+	+
<i>Xylolaemus fasciculosus</i> (Gyllenhal, 1827)	1	a	-						
Endomychidae									
<i>Leiestes seminiger</i> (Gyllenhal, 1808)	2	p	+	-	+	+	+	+	+
<i>Pleganophorus bispinosus</i> Hampe, 1855	1	p			+		+		+
Ciidae									
<i>Dolichocis laricinus</i> (Mellié, 1848)	1	p				-		+	
<i>Ennearthron palmi</i> Lohse, 1966	2	p	+		+	+		+	+
Endecatomiidae									
<i>Endecatomus reticulatus</i> (Herbst, 1793)	1	p	-		+	-	+	-	+
Bostrichidae									
<i>Lichenophanes varius</i> (Illiger, 1801)	2	a	+	+	+	+	+	+	+
<i>Stephanopachys linearis</i> (Kugelann, 1792)	2	f	-		+	i		-	
<i>Stephanopachys substriatus</i> (Paykull, 1800)	2	f	+	+	-	+		-	+
Ptinidae									
<i>Anitys rubens</i> (Hoffmann, 1803)	2	a	-		+	+		+	+
<i>Dorcatoma ambjoerni</i> Baranowski, 1985	1	p			+	+			

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<i>Ernobius explanatus</i> (Mannerheim, 1843)	2	a	+	+		+		+	-
<i>Ernobius kiesenwetteri</i> Schilsky, 1899	2	a	+	+	+	+	+	+	+
<i>Ernobius laticollis</i> Pic, 1927	2	a	+	+					
<i>Stagetus borealis</i> Israelson, 1971	2	p	+	+	+			+	
<i>Xestobium austriacum</i> Reitter, 1890	2	a	+	+	+	+		+	+
Oedemeridae									
<i>Ditylus laevis</i> (Fabricius, 1787)	1	a	+		+	+		-	+
Pythidae									
<i>Pytho abieticola</i> J. Sahlberg, 1875	1	f			+	-		+	+
<i>Pytho kolwensis</i> C. Sahlberg, 1833	1	f						+	
Prostomidae									
<i>Prostomis mandibularis</i> (Fabricius, 1801)	2	a	+	+	+	+	+	+	+
Melandryidae									
<i>Dircaea australis</i> Fairmaire, 1856	2	a	+	+	+	+	+	+	+
<i>Dircaea quadriguttata</i> (Paykull, 1798)	1	a						+	
<i>Mycetoma suturale</i> (Panzer, 1797)	2	p	+	+	+	+	+	+	+
<i>Phryganophilus auritus</i> Motschulsky, 1845	1	a	-		+			+	
<i>Phryganophilus ruficollis</i> (Fabricius, 1798)	1	a	+		-	+		+	+
<i>Rushia parreyssi</i> (Mulsant, 1856)	2	a	+	+			+		+
Pyrochroidae									
<i>Agnathus decoratus</i> (Germar, 1818)	2	f	+	-	+	-	+		+
Tenebrionidae									
<i>Allecula rhenana</i> Bach, 1856	2	m	+	+	+	+	+	+	+
<i>Bius thoracicus</i> (Fabricius, 1792)	1	a	+	+		+		-	+

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<i>Bolitophagus interruptus</i> Illiger, 1800	1	p	+		+	-	+	-	+
<i>Corticeus bicoloroides</i> Roubal, 1933	2	a	+	+	+	+	+	-	+
<i>Corticeus fasciatus</i> Fabricius, 1790	2	a	+	+	+	+	+	+	+
<i>Corticeus suturalis</i> Paykull, 1800	1	f	+		-	+		+	+
<i>Corticeus versipellis</i> Baudi, 1876	1	f			+	-	+	-	+
<i>Eledonoprius armatus</i> (Panzer, 1799)	1	p	+		+	+	+	-	+
<i>Hymenophorus doublieri</i> (Mulsant, 1851)	1	a	+	+	+		+	+	+
<i>Mycetochara obscura</i> (Zetterstedt, 1838)	2	a			+			+	
<i>Mycetochara quadrimaculata</i> (Latreille, 1804)	2	a	+	+	+		+		+
<i>Neatus picipes</i> (Herbst, 1797)	2	a	+	+	+	+	+	+	+
<i>Platydema dejeani</i> Laporte de Castelnau & Brullé, 1831	2	p	+		+	+	+	+	+
<i>Prionychus melanarius</i> (Germar, 1813)	2	m	+	+	+	+	+	+	+
<i>Tenebrio opacus</i> Duftschmid, 1812	1	m	+	+	+	+	+	+	+
Boridae									
<i>Boros schneideri</i> (Panzer, 1796)	1	a			-			+	+
Scarabaeidae									
<i>Gnorimus variabilis</i> (Linnaeus, 1758)	2	m	+	+	+	+	+	+	+
<i>Osmoderma eremita</i> (Scopoli, 1763)	2	m	+	+	+	+	+	+	+
Lucanidae									
<i>Aesalus scarabaeoides</i> (Panzer, 1794)	2	a	+	+	+	+	+	+	+
<i>Ceruchus chrysoelinus</i> (Hochenwart, 1785)	2	a	+	+	+	+		+	+
Cerambycidae									
<i>Aegosoma scabricorne</i> (Scopoli, 1763)	2	a	+	+	+	+	+	-	+
<i>Akimerus schaefferi</i> (Laicharting, 1784)	2	a	+		+	+	+	+	+

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<i>Alosterna ingrca</i> (Baeckmann, 1902)	2	a						+	-
<i>Cerambyx cerdo</i> Linnaeus, 1758	2	f	+	+	+	+	+	+	+
<i>Cornumutilla lineata</i> (Letzner, 1844)	2	a	+	-	+	+	-	+	+
<i>Evodinus borealis</i> (Gyllenhal, 1827)	1	a						+	+
<i>Macroleptura thoracica</i> (Creutzer, 1799)	1	a						+	+
<i>Necydalis ulmi</i> Chevrolat, 1838	2	a	+	-	+	+	+	+	+
<i>Nivellia sanguinosa</i> (Gyllenhal, 1827)	2	a	+		+	+	+	+	+
<i>Nothorhina muricata</i> (Dalman, 1817)	2	f	+		+	+		+	+
<i>Rosalia alpina</i> (Linnaeus, 1758)	2	a	+	+	+	+	+	+	+
<i>Saperda punctata</i> (Linnaeus, 1767)	2	a	+	+	+	+	+	+	+
<i>Stictoleptura erythroptera</i> (Hagenbach, 1822)	1	a	+	+	+	+	+		+
<i>Stictoleptura variicornis</i> (Dalman, 1817)	2	a						+	
<i>Tragosoma depsarium</i> (Linnaeus, 1767)	2	a	+	+	+	+	+	-	+
Curculionidae									
<i>Camptorhinus statua</i> (Rossi, 1790)	1	f	+	-	+	+	+		+
<i>Euryommatus mariae</i> Roger, 1857	2	f	-			+		+	
<i>Gasterocercus depressirostris</i> (Fabricius, 1792)	2	f	+	+	+	+	+	+	+
<i>Hexarthrum duplicatum</i> Folwaczny, 1966	2	a	+		-	+			+
<i>Rhyncolus reflexus</i> Boheman, 1838	2	a	+	+	+	+	+	+	+