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Impacts of placer gold mining on the Red Book species of Mongolia

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ABSTRACT

JAPANESE TREE FROG ...

Its habitats are those most wanted by placer gold mining - damp meadows and swampy areas, and stands of willows. This is true of all amphibians, including the Siberian Salamander. Creating amphibian friendly habitats is possible in the Zaamar Goldfield and Eroo Goldfield.



DEATH TRAP ...

In some areas, large numbers of prospecting pits and trenches have been left open and threaten local extinction by being pitfall traps with no escape. This *Rana amurensis* is trapped in a prospecting pit in the Zaamar Goldfield.



The impact upon biodiversity and ecosystems from the current boom in placer gold mining in Mongolia is poorly understood. One index for gauging the impact is to consider the 229 species of animals and plants listed in the Red Book of Mongolia. These species are classed as 'rare' (possibly extinct and endangered) and 'very rare' (vulnerable and rare). This study suggests which of the Red Book species are at most risk from placer mining.

Nationally, 37 of the 229 Red Book species appear to be under some risk from placer gold activity.

The **larger animal species** include: 3 mammals (Darian Hedgehog, Musk Deer, Elk); 9 birds (White Spoonbill, Whooper Swan, Bar-headed Goose, Swan Goose, Osprey, White-tailed Sea Eagle, Japanese White-naped Crane, Asiatic Snipe, Eurasian Penduline Tit); 2 amphibians (Siberian Salamander and Japanese Tree Frog); and 2 fish (Siberian Sturgeon and Taimen).

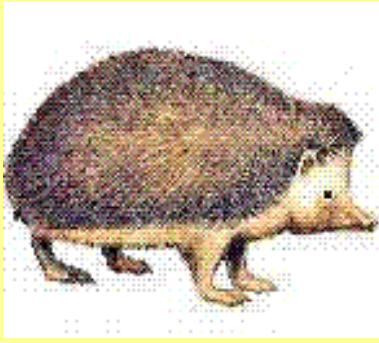
The **invertebrates species** include: 1 coleopteran (Musk Beetle *Aromia moschata orientalis*); 4 butterflies (Apollo, Small Apollo, Tenedius Apollo and Swallowtail); 1 bumble bee (*Bombus muscorum*) and 1 freshwater mollusc (*Anodonta sedakovi*).

The **higher plant species** include: 11 higher plants (Siberian Fir; Forked Stitchwort; Naked Bishop's Cap; Daurian Rhododendron, Bilberry, Manchurian Elderberry, Common Valerian, Dahurian Lily, Ghost Orchid, Cucullated Neottianthe and Mountain Mellick).

The **lower plant species** include 3 fungi: *Leccinum aurantiacum*, *Lepista caespitosa*, and the Giant Funnel Cap *Leucopaxillus giganteus*.

Whilst the most intensive placering activity is in the

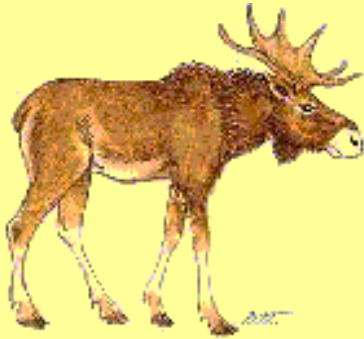
DARIAN HEDGEHOG ... local populations may be wiped out by habitat loss and disturbance. Many may fall into test pits 3 to 6 metres deep with vertical sides and dug in rows at 20 to 40m spacing across valleys. The pits are left open for months and many are not backfilled.



Zaamar Goldfield, the largest impact on Red Data species is considered to be in the Eroo Goldfield in northern Mongolia.

However, the situation at Zaamar is liable to become more critical with the current expansion of mining activity and the increasing risk of serious overload of the Tuul River by an in-rush of suspended sediment from neglected tailings ponds. This risk can be minimised by good mine management, better engineering of tailings ponds and a banning of water-cannons that consume too much water compared with more modern systems.

ELK = MOOSE... The Elk sometimes benefits by placer mining opening up the forest canopy and mining creating a habitat mosaic for shelter and foraging. However the impact of hunting by miners is probably significant.



Overall, as the placer mining industry continues to spread rapidly nationwide, the risks to Red Book species is expected to intensify, especially those species in arid and mountainous regions that are as yet barely affected.

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