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Ready-Ed Publications

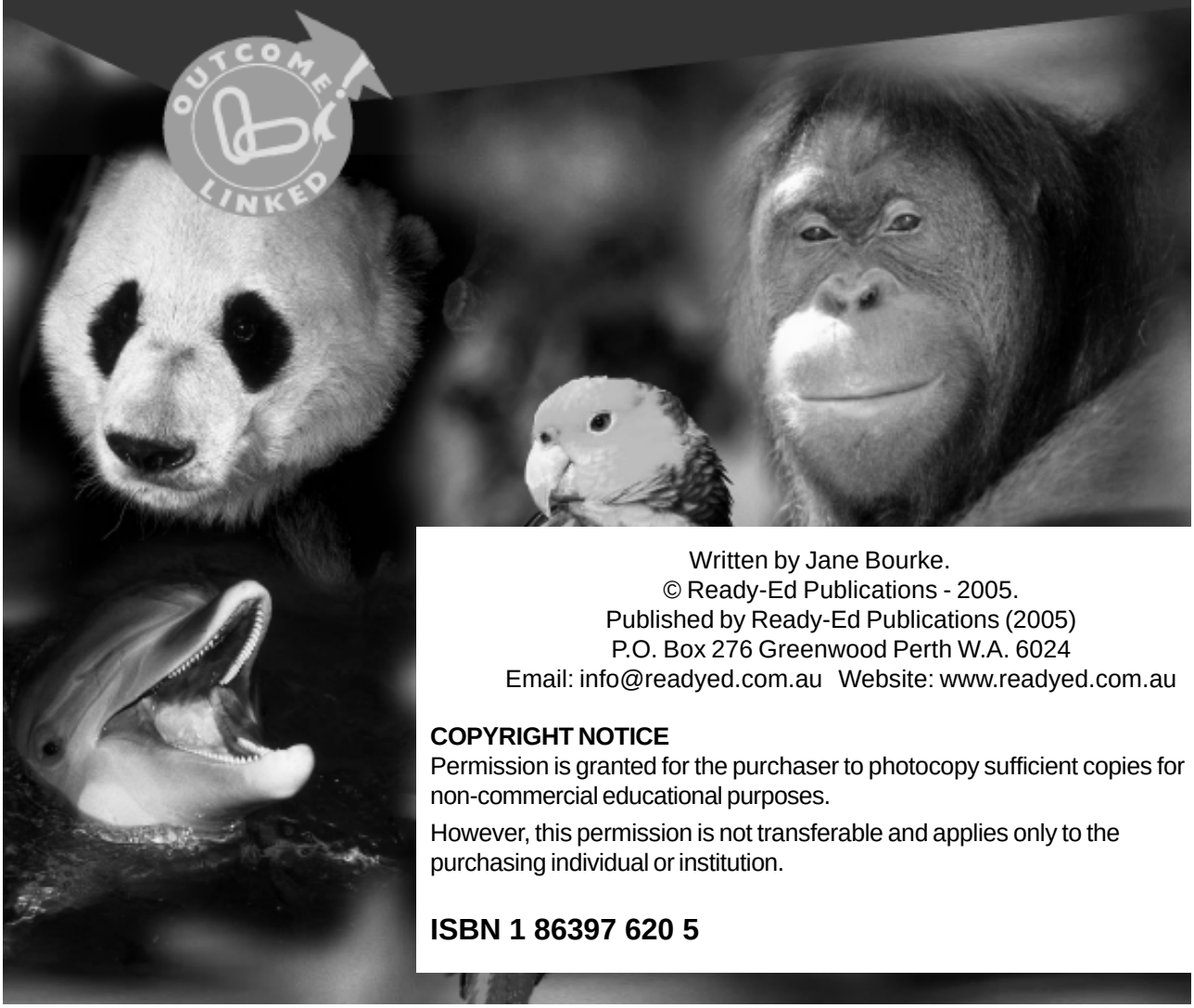
For Ages 10+

PHOTOCOPY MASTERS

ENDANGERED SPECIES *Of* The World

- Self-contained research activities based on endangered and threatened animal species around the world.
- An ideal resource for gifted students or independent learners.
- Contains relevant websites and extensive background information.

OUTCOME LINKED



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Teachers' Notes

Despite the efforts of a range of conservation programs, several native Australian animal species are still classified as critically endangered at a national level. While there are extensive education programs in place, many students are usually unaware of some of the lesser-known native species struggling for survival.

This book endeavours to educate students to the plight of critically endangered, endangered and threatened species. It draws attention to well-known species such as tigers and Malayan bears, but also focuses on less recognised animals that are in a similar predicament such as the tuatara, the Humboldt penguin and the ponderous manatee.

Other aims include clarifying the terms and status of endangered species as well as providing reasons for endangerment, which often vary among species. Students are also informed of what they can do to help certain species through a range of practical and simple strategies.

The animal species explored in this book are classified according to the regions in which they are found. For each featured animal there is a background information page (***Fact File***) that contains relevant details (e.g. species' name, habitat, description and so on) as well as conservation efforts, trivia and websites for further research. The tasks can be carried out in any order and completed independently. While Internet sites have been provided they are usually not essential to the activity. A symbol ( ) indicates where Internet access is required.

There is a heavy emphasis placed on exploring the issues that threaten animal survival and students are given opportunities to examine conservation programs that are currently in place. The activities lend themselves to extension activities, which have been detailed on page 10 as part of ideas for National Threatened Species Day.

At the end of each activity page is a ***WebQuester Challenge*** that will require access to the Internet. Ideally, the students should use the websites provided on the Fact File page as a starting point for their research.

School World Endangered Species Project (Page 51)

This is a global school project involving thousands of students from around the world. The aim of the project is to allow students to share their information on endangered species with other classes. Please visit the website at **www.schoolworld.asn.au/species/species.html** to ensure that your students meet the required guidelines before attempting to complete this activity. Specific guidelines for reporting are available at this link:

- **www.schoolworld.asn.au/species/outline.html** - Report Outline

WEBSITES

All websites mentioned in this book, including the page of Useful Websites on Page 5, have been linked online through the Ready-Ed Website at:

▸ www.readyed.com.au/urls/kids/species.htm

By bookmarking this page, students can easily access the sites without having to type the addresses in. The websites are also checked regularly and replaced where necessary. Any broken links should be reported to **fixlink@readyed.com.au**

Contents

Useful Websites

GOVERNMENT SITES AND OFFICIAL BODIES

- **www.redlist.org/** - 2000 IUCN Red List of Threatened Species
- **www.ifaw.org/elephants.html** - Information about endangered elephants, rhinos and gorillas
- **www.deh.gov.au/biodiversity/threatened/** - Threatened Australian Species and Threatened Ecological Communities
- **www.bagheera.com/** - Bagheera
- **www.wildaid.org** - WildAid - Protecting and Educating
- **www.unep-wcmc.org** - UNEP World Conservation Monitoring Centre

SITES FOR KIDS

- **library.thinkquest.org/J0111700/Index.htm** - Endangered Animals of the World - A ThinkQuest Site
- **library.trinity.wa.edu.au/subjects/science/endangered.htm** - Endangered Species Links
- **www.kidzworld.com/site/p2203.htm** - Endangered Reptile Species
- **library.thinkquest.org/19689/data/esframe.html** - World Endangered Species - A ThinkQuest Site
- **www.nationalgeographic.com/ngkids/9902/crime-busters/** - Wildlife Crime Busters
- **www.kidsplanet.org/factsheets/map.html** - Kids Planet Especies
- **www.deh.gov.au/biodiversity/threatened/information/20-tips.html** - How You Can Help!
- **www.schoolworld.asn.au/species/species.html** - School World Endangered Species Project
- **www.science.org.au/nova/010/010key.htm** - Australia's Threatened Species from NOVA
- **www.museum.qld.gov.au/features/endangered/** - Queensland Museum Endangered Species Online
- **www.rainforestinfo.org.au/spp/** - The Endangered Species Project
- **www.kidcyber.com.au/topics/Austendangered.htm** - Endangered Australian Animals
- **www.spx.nsw.edu.au/src/Links/endanganim.html** - Endangered Animals Links
- **www.calm.wa.gov.au/plants_animals/watscu_splash.html** - Saving Our Threatened Wildlife
- **www.australianwildlife.org/** - Australian Wildlife Conservancy
- **www.deh.gov.au/biodiversity/threatened/information/factsheets/index.html** - World Wide Fund for Nature
- **www.extinctanimal.com/extinct/extinct_mammals.htm** - Extinct Mammals
- **users.netconnect.com.au/Easter_Bilby/** - Read the Easter Bilby Story
- **www.museum.vic.gov.au/bioinformatics/mammals/images/thumblmar.htm** - Mammal Images
- **rainforestinfo.org.au/spp/Schouten/** - Extinct Australian Species
- **www.calm.wa.gov.au/plants_animals/feeding_wild_animals.html** - Feeding Wild Animals
- **www.deh.gov.au/biodiversity/threatened/information/factsheets/index.html** - National Threatened Species Day
- **edtech.kennesaw.edu/web/endangsp.html** - Excellent Links Page

Endangered Species – Definitions

Threatened animal species are classified according to the severity of their risk of extinction. Each country has its own Environment Protection and Conservation Act. Internationally, the World Conservation Union (IUCN) assesses the conservation status of all species and sub species to highlight those that are threatened with extinction and devise ways of promoting their conservation. The IUCN produces a Red Data Book that lists all threatened animal species. This is commonly known as the Red List and you can learn more about at this website:
▸ www.redlist.org

In Australia, the Environment Protection and Biodiversity Conservation Act (1999) classifies threatened species using the categories below. The aim of the Act is to promote the conservation and biodiversity of threatened Australian species. The classifications vary slightly among states and territories.

EXTINCT:

A species is said to be extinct when there is no reasonable doubt that the last member of this species has died. Extinctions can be hard to prove and a limit of fifty years with no official sightings of the species is now used. Some scientists suggest that up to ten species have become extinct every year for the last 600 million years. Examples of extinct species include:

- Dodo bird (*Raphus cucullatus*) Last seen in 1681 (*Mauritius*)
- Thylacine (*Thylacinus cynocephalus*) Last seen in 1936 (*Australia*) - also known as the Tasmanian Tiger
- Steller's sea cow (*Hydrodamalis gigas*) Last recorded sighting in 1768 (*Pacific Ocean*)

EXTINCT IN THE WILD:

When a species exists only in cultivation, in captivity (i.e. a zoo program) or as a naturalised population outside its past range. Examples include:

- Saudi gazelle (*Gazella saudiya*) - Saudi Arabia
- Hawaiian crow (*Corvus hawaiiensis*) - Hawaiian Islands

CRITICALLY ENDANGERED:

Refers to species that are facing an extremely high risk of extinction in the wild in the "immediate" future. Examples of critically endangered animals include:

- Sumatra orangutan (*Pongo abelii*) - Indonesia
- Black rhinoceros (*Diceros bicornis*) - Eastern, central and southern Africa.

ENDANGERED:

Refers to species that are likely to become extinct in the "near" future unless the threats and dangers to their survival are removed. Animal species in this category are not "critically endangered" but they are still facing a very high risk of extinction in the wild. Examples of endangered species include:

- Asian elephant (*Elephant maximas*) - India and Asia
- Blue whale (*Balaenoptera musculus*) - Most oceans, however only 1500 of these whales still exist

VULNERABLE:

Refers to species that are not classified as endangered or critically endangered, yet are facing a risk of extinction in the "medium-term" future. Species that fall into this category are likely to be classified as "endangered" within the next 25 years if no action is taken to preserve the species. Species that are considered "vulnerable" include:

- Great white shark (*Carcharodon carcharias*) - Southern and Pacific Oceans
- Green turtle (*Chelonia mydas*) - Most warm oceans of the world
- Chuditch, Western quoll (*Dasyurus geoffroii*) - Western Australia

NEAR THREATENED:

Refers to species that have been evaluated but do not qualify as critically endangered, endangered, or vulnerable. However, at some time in the future they are likely to qualify as a threatened species.

Examples include:

- Maned wolf (*Chrysocyon brachyurus*) - South America

LEAST CONCERN:

Refers to species that have abundant populations and are considered to be of least concern. There is no recorded evidence of a decline in numbers. An example includes:

- Brown bear (*Ursus arctos*) - Europe, Asia and Northern America

DATA DEFICIENT:

Species where little is known about remaining numbers and populations are listed in this category.

Check Out: ▸ **www.kidsplanet.org/factsheets/esa.html** for more.

Glossary

Biodiversity: (Biological diversity) is the term used to describe the variety that exists among organisms and their environments. It is important that biodiversity be protected so as to allow species to continue to thrive. In the past, species have become extinct as a result of natural causes. Today, however, loss of biodiversity is largely caused by humans. People have hunted certain species to extinction and polluted and destroyed their habitat. Conservation and protection efforts of recent years have slowed down the loss of biodiversity but have not stopped it.

Community: Term used to describe all organisms inhabiting a common environment where all living things interact with each other.

Ecosystem: A self-supporting biological system involving all the organisms in a community and the natural environment. This basically includes all species of plant and animal and the relationships that exist between them and the non-living aspects of their environment such as air, water, light and soil. If anything upsets the delicate balance the whole ecosystem will be affected. An example of an ecosystem is a worm farm where there are many independent factors that work together so the whole system survives.

Endemic: Refers to a species or population that occurs in one particular region in all months of the year and all years. For example, the chestnut-breasted whiteface (*Aphelocephala pectoralis*) is endemic to South Australia while the golden-shouldered parrot (*Psephotus chrysopterygius*) is endemic to the Cape York Peninsula.

Environment: The surroundings in which a plant or animal lives is called its environment. An animal's environment is very important because it can influence its development and behaviour. The environment of an animal includes its immediate habitat, climatic conditions, weather and human interference. An animal or plant adapts to its natural environment in order for it to survive. If an animal exists in a harsh environment it will try to develop special features over time that will allow it to exist more easily in the particular environment. For example, chameleons have developed a way to change their skin colour to allow them to blend in with their surroundings, escaping predators in the process.

Habitat: The place or places normally occupied by a particular species or population.

Home range: The home range is the area in which an animal will move around in order to feed.

Least concern: This is the status given by CITES (The Convention on International Trade in Endangered Species of Wild Fauna and Flora) when a species of plant or animal has been evaluated but does not qualify as being threatened at this time.

Marine Protected Areas: A marine protected area (MPA) is any marine area, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment. Some of the functions of MPAs are protecting important habitats and areas, studying the effect of developments such as marinas on marine habitats, protecting endangered marine species and regulating the fisheries to make sure size limits do not endanger the survival of certain species.

Predators: Predators are carnivorous animals that hunt and kill other animals for food. This term is used to describe any animal that lives by preying on another animal. For example sharks are predators of smaller fish, frogs are predators of beetles and insects, crocodiles are predators of fish, eagles are predators of lizards and humans are predators of dairy cattle.

Special adaptations: Animals make adaptations to their environment by changing to become better suited to their environment in order to survive and reproduce. Some of these adaptations may be behavioural while others, which happen over long periods of time, may be physical. Kangaroos, in times of drought when there is little food, will not have as many babies so there are fewer kangaroos to share the limited food sources. When there has been a really good season they will have more joeys than normal because there will be an ample food supply.

Species: This is the basic unit of classification for all members of the animal and plant kingdoms. Animals are grouped together according to their common characteristics. Each group is classified as a species. Members of a species all have common characteristics and differ from all other living things in one way or another. The scientific name for species is usually written in italics or is underlined. No two species in a genus have the same name and most of these names come from Greek or Latin words. All organisms are known by different common names around the world, however, their scientific name is always the same no matter what language.

Sub species: A group that is a subdivision of a species, which usually occurs because of isolation within a species.

What is CITES?

CITES stands for the Convention of International Trade of Endangered Species of Wild Flora and Fauna.

It is an international agreement between governments around the globe. Its main goal is to ensure that international trade in animal species does not threaten the survival of that species.

This convention was organised in the 1960s at a time when the status of animal species and conservation efforts were not as obvious as they are today.

Animal trade is a multi-billion dollar industry. Species are traded as live animals or as animal products such as in leather goods, food products, souvenirs and medicines. Some animal trade has greatly contributed to the decline in animal numbers, with several species close to extinction.

While other animal species are not classified as threatened, trade must still be monitored in order to protect this species in the future. As international trade crosses borders between countries, cooperation from a number of countries is required. Over 30 000 animal and plant species are protected through CITES. The first agreement was drafted in 1963 at a meeting at the World Conservation Union (IUCN). IN 1973, the Convention was signed by 80 countries in Washington DC, in the United States. CITES came into force on 1 July 1975.

Since CITES was established, not one of the 30,000 listed species has become extinct. CITES is one of the largest international agreements in existence in the world today and to date, 167 parties (countries) have signed. However, it should be noted that CITES is not an international agreement on the conservation of endangered species and does not prohibit killing endangered animals or require that nations protect habitats. The laws of an individual country determine whether it is legal to kill or sell an animal.

For more information visit:

- **www.cites.org/** - CITES
- **www.iucn.org/** - World Conservation Union
- **www.redlist.org/** - Red List of Threatened Species from IUCN

Australia and Endangered Species

Australia's commitment under CITES is explained through the Environment Protection and Biodiversity Conservation Act, 1999.

- **www.deh.gov.au/biodiversity/publications/trade-use/factsheets/cites.html**

New Zealand and Endangered Species:

New Zealand's commitment under CITES is explained through the Trade in Endangered Species Act, 1989.

- **www.doc.govt.nz/Conservation/International/Convention-on-International-Trade-in-Endangered-Species/index.asp**

Threatened Species of Central Asia

Malayan Sun Bear

Fact File

Scientific Name: *Helarctos malayanus*

There are eight species of bears in the world; the Malayan sun bear, the Asiatic black bear, the spectacled bear, the American bear, the giant panda, the sloth bear, the polar bear and the brown bear. The Malayan sun bear is the smallest of all these bears. Despite the small size (1.2 metres tall and 64 kilograms in weight) they can be extremely dangerous.

They live in the tropical forests of China, Burma, Malaysia, Sumatra, Laos, Cambodia, Vietnam and Borneo. Sun bears are primarily nocturnal and arboreal, building nests in tree branches and napping and sunbaking during the day.

Sun Bear Adaptations

The Malayan sun bear has many different adaptations to suit its habitat. This bear is a very skilful climber, aided by long sickle-shaped claws on all four feet. These extremely long claws (up to 15 centimetres) allow the bear to dig for honey and grubs, which it licks up using its long tongue. Its jaws are disproportionately large so that it can break open hard fruits like coconuts. The sun bear is able to tear trees apart with its long curved claws to get to the insects under the bark.

Diet

These bears have an omnivorous diet, eating fruit, tips from palm trees, small mammals, birds and roots.

Check Out

- **www.chaffeezoo.org/animals/sunBear.html**

Threats to Survival

There are many reasons for the endangerment of the Malayan sun bear. Logging and conversion to agriculture have destroyed the majority of the Malayan sun bear's forest habitat. The logging roads allow poachers to capture the bears more easily. As natural food sources disappear, the sun bears are driven by hunger to forage for food on farms and plantations, where they are shot or trapped by angry farmers.

Malayan sun bears are also kept for pets – the mother bears are killed in order to obtain cubs young enough to tame.

The demand for bear products is the greatest threat to all bears. Traditional Asian medicine prescribes bear fat, gall, meat, paws, spinal chord, bile, blood and bones for complaints ranging from baldness to rheumatism. Bear entrees are popular in restaurants and sun bear paws are used in soup.

Conservation Measures

Some conservation measures have been put into place to protect the Malayan sun bear. They have been listed as a threatened species but the belief in the medicinal properties is so firmly rooted in some cultures it is virtually impossible to change.

Many countries have banned trade in bear products, but in South Korea and Taiwan – the greatest users of bear products – the government has not banned their use.

In China, scientists have developed a way to extract bile from live bears and farms have been set up to do this. This effort has been driven more by economics than concern for the animals. Although Government officials have claimed that the farming has slowed the killing of wild bears, it actually promotes the use of bear products and makes them available to more people.

Threatened Species of Central Asia

Saving the Sun Bear

Activity

MAP IT OUT

Use an atlas and the map below to show where the Malayan sun bear is still found. Shade the areas of each country.

IT'S BARE IN THE WOODS!

Bears are rapidly disappearing from wooded areas in Asia. Summarise the two main threats to the survival of the Malayan sun bear and other bears in the region.

For each of your points, write down a solution or conservation effort that should be put into place. Be specific with your answers and try to give examples of how your solution/s have worked with other endangered animal species.

1. **Threat to survival**: e.g. Habitat loss

   Problem - _____

   _____

   _____

   A solution - _____

   _____

   _____

2. **Threat to survival:**

   Problem - _____

   _____

   _____

   A solution - _____

   _____

   _____

WebQuester Challenge: The Bear Family

Bears belong to the order Ursidae. Find out the common names and locations of the sun bear's two closest relatives:

SCIENTIFIC NAME	COMMON NAME	GLOBAL LOCATIONS
Ursus arctos horribilis		
Ursus maritimus		