



Diamond-backed Moth



Clear-winged Moth



Acmaeodera Jewel Beetle

NORTHERN LEOPARD FROG

Rana pipiens

Family – True Frogs (Ranidae)

Range – Meadows, bogs, swamps and woodlands from British Columbia to Labrador and south to California and Tennessee.

Diet – Insects (beetles and caterpillars), worms and slugs. Larvae graze on algae and small organisms.

Status – Many populations have been lost or are in decline, especially in the western 2/3s of the range. Listed as Special Concern for the Prairie Population, which has suffered massive die-offs caused by habitat destruction (wetland drainage, loss of prairie), pesticides and diseases.



Notes – This is a familiar species measuring 5 to 11-cm long and attractively colored bright green or brown, with several rows of rounded dark spots along the back. Hibernating at the bottom of a lake or stream, adults migrate in spring to a pond for the breeding season, lasting from April to May. Egg masses contain from 600-8000 eggs, which hatch in 2-17 days. Metamorphosis to the adult is reached in 3-6 months. Average life span is 2 years, but 9 years is possible in captivity. In nature, fewer than 5% of amphibian eggs survive to the adult stage, while this figure climbs to over 95% when raised in zoos and aquariums for release programs. Dozens of species of frogs



and toads in North America are now dependant on this recruitment of individuals to maintain population numbers and genetic variation.

Frogs evolved their current form, general

life history, and ecology over 200 million years ago, and so they have proven remarkably adaptive to a succession of great environmental and ecological changes. They now face their biggest

challenge from a chytrid fungal disease, which was spread worldwide by human activities. Over 125 species have recently become extinct, and 80% of the surviving 6000 species of amphibians may not survive our own lifetime.



GRENOUILLE LÉOPARD

Rana pipiens

Famille – Grenouilles véritables (Ranidés)

Habitat – Prés, tourbières, marécages et terres boisées, de la Colombie-Britannique au Labrador, et vers le sud, jusqu'à la Californie et au Tennessee.

Alimentation – Insectes (coléoptères et chenilles), vers et limaces. Les larves se nourrissent d'algues et de petits organismes.

Statut – De nombreuses populations ont disparu ou disparaissent, notamment

dans les deux tiers les plus à l'ouest de l'habitat. Elle est dans la liste des espèces en péril dans les Prairies qui ont subi des pertes considérables du fait de la destruction de leur habitat (assèchement des marécages et recul de la prairie), des pesticides et des maladies.

Notes – C'est une espèce commune qui mesure entre 5 et 11 cm de long. Elle arbore de remarquables couleurs vert vif et marron et présente plusieurs rangées de taches arrondies et sombres le long de son dos. Hibernant au fond d'un lac ou d'un cours d'eau, les adultes migrent vers une mare au printemps pour la saison des amours, qui dure d'avril à

mai. Le dépôt d'œufs contient entre 600 et 8 000 œufs qui éclosent dans les 2 à 17 jours. La métamorphose en adulte survient dans les 3 à 6 mois. La durée de vie moyenne de l'espèce est de 2 ans, mais en captivité, elle peut atteindre les 9 ans. Dans la nature, moins de 5 % d'œufs d'amphibien survivent jusqu'à l'âge adulte, tandis qu'il en survit plus de 95 % en captivité, dans les zoos et les aquariums, pour les programmes de mise en liberté. Des douzaines d'espèces de grenouilles et de crapauds en Amérique du Nord dépendent de ce recrutement d'individus pour maintenir leur effectif et la variation génétique.

Les grenouilles ont commencé leur évolution, leur histoire générale et leur écologie il y a plus de 200 millions d'années, et elles ont fait preuve d'une grande capacité d'adaptation face à des changements environnementaux et écologiques conséquents. Elles affrontent aujourd'hui leur plus féroce ennemi, la chytridiomycose, une maladie fongique qui a été répandue partout dans le monde par les activités humaines. Plus de 125 espèces ont disparu récemment, et 80 % des 6 000 espèces d'amphibiens pourraient disparaître pendant notre propre vie.



WOOD FROG

Winnipeg

zoological society
of manitoba
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du manitoba

Rana sylvatica

Family – Frogs (Ranidae)

Range – Near ponds in wooded and shrubby habitats from Alaska to Labrador and south to mountains in Arkansas and Georgia. It may extend out onto grassland and tundra with nearby woody cover.

Diet – Beetles, caterpillars, spiders, flies, worms. Larvae graze on bottom algae,

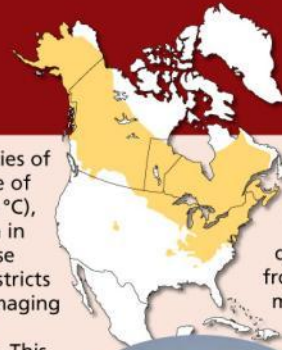
organic debris, and small animal life including frog eggs and tadpoles.

Status – Secure

Notes – This abundant brown and tan frog sports a distinctive dark mask and often a white strip along the back. It may reach a length of 8 cm (3 inches), but most specimens are under 5 cm (2 inches). The home range is variable but averages 85 sq. metres. This

is one of several species of frogs that can survive of freezing (down to -6 °C), due to the formation in the autumn of glucose anti-freeze, which restricts the formation of damaging ice crystals to spaces outside the cell walls. This remarkable adaptation to cold is responsible for the frog's extensive boreal occurrence – the largest distribution of all North American amphibians.

Adults migrate (often in 'explosive numbers') in April from their hibernating sites in



the forest leaf litter or under logs to temporary or semi-permanent ponds, lacking fish predators. The mating call is a duck-like quack, heard from April to early May. When mating, the female releases

about 3000 dark eggs in a jelly mass, often attached to an underwater plant. A number of females often lay in the same site, so the black egg masses are highly conspicuous. The larvae grow and usually transform into the adult stage in July. Males mature sexually at 1-2 years, females 2-3 years, and maximum longevity is 5 years.



GRENOUILLE DES BOIS

Rana sylvatica

Famille – Grenouilles (Ranidés)

Habitat – Près des mares, dans des habitats boisés et frutescents, de l'Alaska au Labrador et vers le sud, jusqu'aux montagnes de l'Arkansas et de la Géorgie. Elle s'aventure parfois dans les herbages et la toundra, à proximité des couverts arborés.

Alimentation – Coléoptères, chenilles, araignées, mouches et vers. Les larves se nourrissent d'algues qui poussent au fond des mares, de débris organiques et de petits animaux, notamment des œufs de grenouilles et des têtards.

Statut – N'est pas menacée.

Notes – Cette grenouille

prolifère marron et bronze porte un masque sombre particulier et arbore souvent une bande blanche le long de son dos. Elle peut atteindre une longueur de 8 cm (3 pouces), mais la plupart des spécimens mesurent moins de 5 cm (2 pouces). Son territoire est variable mais s'étend en moyenne sur 85 mètres carrés. Cette espèce, comme plusieurs autres, est capable de survivre au gel (jusqu'à -6 °C) grâce à la formation, à l'automne, d'un anti-gel à base de glucose qui limite l'accumulation

de cristaux de glace à des espaces situés à l'extérieur de ses parois cellulaires. C'est cette remarquable adaptation au froid qui permet à la grenouille des bois de se reproduire abondamment dans les régions boréales – elle est l'amphibien le plus répandu en Amérique du Nord.

En avril, les adultes quittent (souvent en masse) leur lieu d'hibernation, soit le tapis de feuilles des bois ou le dessous d'un rondin, et vont s'installer dans les mares temporaires ou semi permanentes qui n'abritent pas de prédateurs. Son cri sexuel est un caquètement



semblable à celui du canard que l'on entend à partir d'avril jusqu'au début mai. Pendant l'accouplement, la femelle libère un dépôt gélatineux contenant environ 3 000 œufs sombres qui se fixe généralement à une plante subaquatique. Souvent, plusieurs femelles pondent au même endroit, ce qui rend les dépôts d'œufs encore plus faciles à distinguer. Les larves atteignent habituellement le stade adulte en juillet. Les mâles atteignent leur maturité sexuelle à 1 ou 2 ans, les femelles à 2 ou 3 ans, et l'espérance de vie de l'espèce est de 5 ans.



Golden Toad



African Clawed Frog

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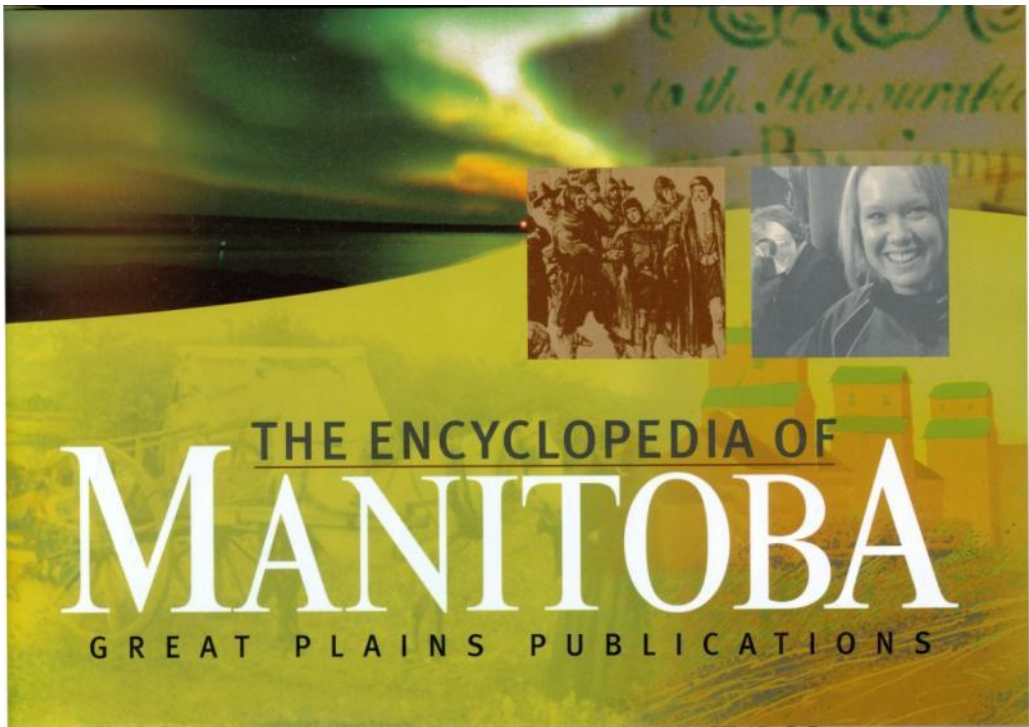
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THE ENCYCLOPEDIA OF
MANITOBA
G R E A T P L A I N S P U B L I C A T I O N S



Table 1. Recorded or Estimated Biodiversity of Manitoba

This table includes estimates of Manitoba's current biodiversity (#'s of species) as well as historically extinct, extirpated, and exotic species (*). Estimates become less accurate with diminishing body size and lack of research. Species estimates for many other life forms remain unknown.

ANIMALS	
Mammals 88	
Birds 391	
Reptiles 8 (Snakes 5, Lizard 1, Turtles 2)	
Amphibians 16 (Frogs 8, Toads 4, Salamanders 4)	
Fish 132 (freshwater 91, marine 41)	
Arthropods 25,000 (A few groups of these joint-legged invertebrates are listed here.)	
Ticks 15	
Mites 5000	
Lice 500	
Pseudoscorpions 20	
Centipedes 50	
Millipedes 10	
Crustaceans 200	
Spiders 700	
Insects 18,000	
Springtails 200	Mayflies 80
Stoneflies 40	Caddisflies 200
Aphids 400	Midges 300
Thrips 60	Mosquitoes 50
Butterflies 111	Flies 6000
Skippers 33	Fleas 57
Moths 600	Leafhoppers 400
Beetles 2500	Treehoppers 41
Ants 81	Grasshoppers 68
Wasps 5000	Crickets 8
Bees 225	Dragonflies and Damselflies 100

Bugs 1400
Tunicates 18
Sea Squirts 16
Larvaceans 2
Molluscs 170
Snails 94
Clams and Scallops 72
Chitons 3
Tusk Shell 1
Rotifers 50
Water Bears (Tardigrades) 30
Roundworms 3000
Flatworms 3000 (land, freshwater and marine)
Annelid Worms
Earthworms 120 (including 100 freshwater and terrestrial ones & 20 marine)
Bristleworms 85
Leeches 24
Comb Jellies 3
Cnidarians (Jellyfish, Anemones, Soft Corals) 57
Sponges 5
Arrow Worms 3
PLANTS
Vascular Plants (Flowering Plants and Ferns) 1700 (native 1500, exotics 200)
Mosses 733
LICHENS 800
FUNGI 3000
PROTOCTISTANS (Unicellular protists) (Unknown, but in the hundreds of thousands)
Algae 36,000
BACTERIA and VIRUSES (Likely in the hundreds of thousands)

CANADA'S SPECIES AT RISK (COSEWIC)

Endangered: 262

Threatened: 151

Special Concern: 166

Extirpated: 23

Extinct: 13

Total: 615

GUEST EDITORIAL

Overpopulation, poverty and wildlife extinction

[This article is reprinted with modification from *CAZA News* (Canadian Association of Zoos and Aquariums), January–February 2000.]

Under the onslaught of an ever-increasing human population, it has become clear that humanity and the world's environments and ecosystems are now under serious threat. In their landmark books, Ehrlich and Ehrlich (1970) and Wilson (1992) demonstrated with overwhelming evidence that reducing the human population, and hence lessening demands on natural ecosystems, is the over-riding factor in the struggle to conserve the natural world. The current frenzy for exploiting natural resources and escalating environmental degradation by the world community are in stark contrast to traditional beliefs of aboriginal peoples about Mother Earth. The spiritual inter-relatedness of earth, water, plants, animals and people demanded that great respect be shown to each part of this unity of life. They appreciated (as few people do today) that their very survival depended on caring for the natural world.

However, both in past times and at present, when people are in desperate need, they have little choice but to exploit Nature to the fullest of their abilities and technologies. Witness the rapid extinction of hundreds of species of large animals in North America, Europe, Madagascar, Australia and New Zealand, shortly after early people arrived and populated these land masses. The American Great Plains region formerly supported a fauna of large animals as rich as that found today in Africa. In the last 18,000 years, rapid climatic changes, ecosystem dislocations, and particularly over-harvesting by people, have left a decimated assemblage of large animals. Over 73% of large mammals and large birds in North America were wiped out (Martin and Klein, 1984).

Overpopulation and conservation

Dedicated wildlife conservationists valiantly try to manage ecosystems and wildlife populations by conducting research projects, establishing large natural preserves, maintaining genetically diverse captive-breeding programs, developing education programs, and many other activities. But increasingly they are being overwhelmed by the demands of an ever-growing human population. As a biologist and educator, I find it disheartening how infrequently the critical topic of birth control, or family planning, is stressed in society in general, and in the signs and programs of zoos and aquariums. We feel justified and safe in discussing human overpopulation and the resulting habitat loss and environmental degradation, but fear to tread further to the logical conclusion. True, birth control is a taboo subject fraught with public-relations risks, and it may challenge dearly-held concepts about individual rights and family.



Cougar