

condition, there has been a significant improvement in the overall condition of the rangelands of British Columbia in the past 40 years. For example, no longer do we see the extensive acres of cheatgrass (*Bromus tectorum*) and other annual weeds. This improvement is largely a result of improved range management and application of the results

of research. Greater use of controlled grazing and sound range management and implementation of sound range improvement practices have raised the condition of both rangelands and livestock. These changes have led us from a period of exploitation to one of managed grazing on the ranges of British Columbia.



A Home Where Marsupials Can Roam

Greg Siepen

In New South Wales, Australia, some rural land managers direct their activities at not only producing income but also producing wildlife. This is done in co-operation with the National Parks and Wildlife Service (N.S.W.), which is not only responsible for national parks and historical sites (European and Aboriginal), but also for looking after Australian native animals which occur in the State.

Each property selected because of its high wildlife value and positive attitude of the owner is made into a "Wildlife Refuge", with the National Parks and Wildlife Service assisting in wildlife management by providing information and advice on maintaining and increasing wildlife on the farm. In some cases finance can be supplied to achieve these aims but often there is no economic gain to the property owner in increasing wildlife.

Although the Wildlife Refuges in the United States are on Government lands, in New South Wales over 90% are privately owned farms on which the owner makes a living as well as maintains the wildlife still occurring on his property. The concept of the "Wildlife Refuge" is different in Australia as no unauthorized hunting is allowed. Hunters can shoot on Game Reserves either run by the National Parks and Wildlife Service or privately owned. The main value of a refuge is the retention of wildlife areas to assist those areas being protected in national parks and using these areas for research, education and enjoyment.

In New South Wales alone, over two thirds of the State is occupied by private rural producers, leaving a very small part for national parks, forests, and nature reserves where our unique plants and animals can be conserved. Most of the national parks are isolated from each other. Encouraging rural land managers in between these parks and reserves to conserve the remaining natural areas and rehabilitating low-grade wildlife areas on their properties links the bigger national parks and nature reserves with "wildlife pathways."



A huge Belah tree (Casuarina cristata) offering shade for stock and wildlife such as red and western grey kangaroos, which are common on wildlife refuges in the dry part of Australia.

These pathways are vital to the survival of many Australian animals which are nomadic or migrate with the flowering seasons of the Eucalypts and wattles.

One refuge owner, who lives in the semiarid part of New South Wales, has spent 20 years improving his property for wildlife. His production of beef also has increased over these years. Keenly interested in nature, he sought the assistance of the National Parks and Wildlife Service and his property was made a refuge in 1968. A Plan of Management was devised to manage the land not only for beef production but also for wildlife conservation.

The Management Plan concentrated on improving the marginal areas for wildlife by planting native shrubs for food and shelter for the birds and marsupials, and allowing long

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Editor's Note: It is interesting to note that in Australia, National Wildlife Refuges are privately owned, while in the United States they are publicly owned.



Beef cattle find shade and shelter amongst the many bumble box trees (Eucalyptus populnea) that have been left on Eurool Wildlife Refuge in the Western Division of New South Wales, Australia.

spells with no grazing for regeneration to occur.

Locking areas from economic use may seem wasteful, but in the long term the whole property and district will benefit because of the beauty of these natural areas and the contribution they play in keeping plague insect numbers in control, and in controlling insects harmful to the health of each beast. Eagles and owls live in these wildlife areas and eat the introduced rabbits which, if not controlled, can devastate a grazing property in a very short time.

In the last few years more birds have made their homes in the wildlife areas and different types of kangaroos live there as well. Over 80 different species of birds have been recorded on this refuge.

On another refuge in the drier part of New South Wales where there are normally 5 acres to the one sheep, different wildlife management techniques are used. Instead of locking-up areas from stock interference, the paddocks, sometimes 10,000 acres in area, are judiciously managed to

maintain the natural range conditions. Trees are probably one of the most important natural resources to retain for wildlife, and riverbanks and tanks are usually lined with River Red Gums, which provide nest holes for the great variety of Australian parrots, ducks, and reptiles. Special permission is required to cut down any trees in this Western Division of New South Wales, not only because of their wildlife value but for soil conservation reasons. Some of the foliage of these trees is used as stock feed in extended droughts (Mulga, Wilga).

On other refuges natural freshwater lagoons are retained and the edges planted with shrubs and trees for nesting of ducks. These lagoons still provide water for stock by way of troughs, and the lagoon is fenced to prevent trampling of the edges. The incidence of liverfluke infection is reduced by excluding stock. If trees cannot grow, duck boxes and floating islands can be constructed for duck breeding.

Some animals such as the large kangaroos can build up in numbers in some districts. Although kangaroos are protected by law, a licence can be issued by the National Parks and Wildlife Service to reduce the numbers if it can be shown that significant economic damage is being done to the grazing lands. In spite of the fact that this system has been in operation since the early 60's in the rangelands of N.S.W., there has been no downturn in kangaroo numbers—over 5 million red and grey kangaroos live in the arid areas.

The real threat is the disappearance of the small marsupials, that live amongst the saltbush and small shrubs. The trampling of the ground by sheep and cattle, heavy grazing, and occupation of these animals' burrows by the rabbit have all contributed to the extinction of some small marsupials from the rangelands of N.S.W.

The Wildlife Refuges in N.S.W., Australia are attempting to demonstrate to surround property owners the value of retaining natural areas and wildlife in assisting production of beef and sheep and in providing a community asset. In essence they are utilising the land for its best potential for income-making and conservation of wildlife. ●

Sagebrush Rebellions Moving Right Along

Members of the new BLM Public Lands Advisory Committee, meeting in Washington on Jan. 28 and 29, were given a presentation on the Sagebrush Rebellion by a panel consisting of Nevada State Assemblyman Dean Rhoads (the "father" of the Rebellion in Nevada), Maitland Sharpe of the Izaak Walton League, and Mike Harvey of the Senate Energy and Natural Resources Committee Staff. Rhoads said that his state was tired of being the "dumping ground" for federal programs that no one else wanted, and that a decision would be made by the end of the year whether the state will sue the US. to validate its claim on BLM lands in Nevada. Sharpe characterized the Rebellion as just another in a long series of moves by commercial interests to weaken BLM management of public lands, and argued that management of the land can best be achieved by giving BLM adequate funding rather than turning the land over to the states for management. Harvey noted that no action appears likely on the Hatch bill

to turn over BLM and Forest Service lands to the states. Harvey said that passage of the bill would require strong support from non-public land states, which he does not foresee.

Curbing Farm Pollution

We soon may know what practical steps can be taken to reduce agricultural runoff of pesticides, fertilizers, animal wastes and sediment. This vexing "nonpoint" pollution, which kills fish and wildlife and silts up water bodies, is the target of the new \$50 million Rural Clean Water Program being initiated by the Agriculture Stabilization and Conservation Service, U.S. Department of Agriculture. In the pilot program involving 2,000-3,000 farms nationwide, farmers will be given federal funds and technical assistance for installing "best management practices" on their lands. If the program is successful, it could be expanded to more agricultural areas.