

Brown quail and its management

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The brown quail (*Coturnix ypsilophora*) is the most widespread of the 11 species of true quail and button quail in Australia. Brown quail is found naturally in Indonesia, Papua New Guinea and many parts of coastal Australia and has been introduced to New Zealand and Fiji.

Throughout its range, brown quail prefers grassy habitats that provide a mix of dense cover for nesting; open, sunny spaces for feeding and basking; and secure areas to escape from predators. If properly managed, the tussock grasslands of Australia can provide all of these ingredients and quail populations can be maintained for many years.

Life history

The sharp one-note whistle made by male quail in early spring to attract a female is the earliest sign that the reproductive season is beginning. Courting pairs are initially formed in September, but pair bonds will form and break, then re-form during the breeding season, which runs from October to March.

In any given breeding season, individual birds may mate and initiate nesting with several partners. Nests are incubated by both the cock and hen bird, but quail rarely alternate incubation duties. This complex social structure allows multiple nesting attempts during the breeding season and contributes to the species high reproductive potential.

Quail select a nest site where grasses are the dominant vegetation. Brown quail prefer knee-high cover for nesting, near an edge that adjoins an opening or bare ground. The nest is built in a slight depression in the soil, using available dead grasses and stems. The hen lays one egg daily until a clutch of eight to 12 eggs is produced before commencing incubation.

Hens incubate the majority of the nests and thus are most susceptible to nest predators such as quolls, snakes and feral cats. After 22 to 23 days of incubation, the eggs hatch and once hatching begins, most of the chicks emerge together within a few hours.

Brood rearing

The peak hatch is around late December to early January, but depending on the location, the seasonal conditions and the age of the birds, not all pairs successfully produce a brood. However, through repeat re-nesting, most birds that survive a breeding season do ultimately hatch and rear a brood. Double clutching is known in brown quail, but the significance on populations is unknown.

Newly hatched chicks are covered in a natal down, weigh 8 grams and are not much larger than a walnut. They are very alert, move around in jerky movements and are flightless for the first 13 days. Hens take the chicks to open, insect-rich 'bugging' habitat, which also provides protection from predators and intense heat or wet and cold conditions, yet allows free movement of the tiny chicks. The first two weeks of life are critical because losses to predators and bad weather may take 50 per cent or more of the hatchlings.

Between 14 and 28 days, chicks complete their juvenile plumage and gain the ability to fly. By 30 days of age, the birds resemble the adults in size. By 100 days, quail have the plumage that will be worn until the next breeding season. Also by this time, hens are easily identified from cocks by the darker bars on the chest feathers, the broader white stripe on the shoulder feathers and the more intense stripes on the head. Juveniles can be identified from adults by the ratio of the length: width of the 10th primary feather - in juveniles, the ratio is >58 , while in adult birds, the ratio is <56 . Most broods have hatched by mid-February.

Summer life for all ages

By late summer, brown quail begin to exhibit the characteristic night-roosting habits of forming a circle on the ground with tails together and heads pointing out. The exact reason for this behaviour is unknown, but it may have social implications, or be for escape and heat conservation purposes.

During late summer, birds begin to form coveys, or social groups, that may be of 20 to 30 birds. These groups may eventually be reduced to coveys of 10 to 15 birds as winter approaches. This transitional period is when populations have peaked for the year. As winter develops, bird movement is reduced, and the coveys are composed of mainly juvenile birds.

In some cases, as much as 80 per cent of the autumn population may be lost to natural mortality by the following spring. Shortage of food, poor cover and predators take their toll on populations.

Habitat needs

The brown quail has adapted to survive and flourish in habitats that provide early stages of plant succession, whether in native grasslands, around old-cultivated areas or lands that are actively grazed. Quail is affected by soil and site quality and does best on moderately fertile, moist but well-drained soils with a high clay-silt component.

If left undisturbed, natural plant communities gradually change over time. Following initial disturbance, an annual plant community develops. Within two to three years, this community is replaced by a perennial plant community, which gradually becomes a grass/shrub/old plant community. This whole process may take five to 10 years depending on soil fertility, moisture and the length of the growing season, and is known as 'natural succession'. Brown quail depend on different early successional stages of this continuum to meet specific needs. Therefore, the management of the habitat must aim to create early successional plant communities.

Habitat management

Sustainable quail populations require careful thought and planning, followed by on-ground management practices. The objective of habitat management is to provide a mosaic of early successional habitat attractive to quail and meet all of their seasonal food and cover requirements. In general, interspersing habitats as close together as possible and providing the maximum amount of edge and transition zones will achieve this goal. For example, small patches of food areas adjacent to weedy banks and fences and a fallow rotation of three to five years provide ideal habitat for brown quail.

One of the most important techniques is the careful use of prescribed fire, which is a cost-effective and efficient tool. Fire is best employed on a three- to five-year cycle outside of the nesting season. Late-winter burns are often the safest because it removes dead plant material, stimulates desirable legume growth, exposes mineral soil and provides open, early successional vegetation stages.

Soil disturbance is also critical and can easily be achieved by judicious use of grazing. Removing dense grasses provides room for better seed producers. Light grazing by cattle is preferred because it develops a mosaic of vegetation, whereas constant sheep grazing tends to produce a uniform vegetation community that is not suitable as quail habitat. Light to moderate grazing holds succession in check, but overgrazing reduces available cover and selectively eliminates food plants such as legumes.

Finally, predators such as feral cats must be controlled if quail populations are to thrive. As a ground-nesting bird, brown quail hens are particularly susceptible to stealth predators such as feral cats. A mosaic of various habitats plays an important role for quail to escape from feral cats. Regular shooting or trapping of feral cats, in conjunction with good habitat management, will ensure that your brown quail population is healthy and sustainable into the future.

Hunting brown quail

The hunting of brown quail is legal in Tasmania and complements the legal hunting of stubble quail in South Australia and Victoria. There is no credible evidence that the hunting of brown quail has any negative effect on the long-term viability of populations. Furthermore, there is no scientific evidence that the hunting of brown quail - or any quail species - is inhumane or cruel. While some animal rights groups may call for quail hunting to be banned on cruelty grounds, closer scrutiny of these claims shows their calls are based on an ideological position that opposes hunting of any form, rather than based on an informed scientific position.

Traditionally, the brown quail hunting season in Tasmania has occurred annually for a four-week period in May, and then only north of an imaginary line from Swansea on the east coast to Queenstown on the west coast. In this context, the announcement by the Tasmanian Government in 2010 to conduct a two-year trial to extend brown quail hunting throughout the state should be applauded. This trial marks the first time since 1967 that brown quail hunting has been permitted throughout Tasmania.

The early results from the first year of the trial suggest that while more people bought quail licenses, the average number of birds harvested per hunter was similar in the south and north-east of the state. Since quail hunting in the north-east has been sustainably conducted for many years, there is currently no evidence that hunting in the south should be any different. If the two-year trial shows that quail populations can be sustainably maintained in the south of Tasmania, consistent with populations in the north, then there should be no biological grounds for not making quail hunting a Tasmania-wide affair.

Some opponents of quail hunting suggest that if there is to be a season, then it should occur when the birds are not breeding. This is a logical position and indeed, the Tasmanian quail season is held at a time when the birds are reproductively inactive. However, evidence suggests that brown quail only start to become reproductively active in August to September, so it could be argued that the quail season is too short. Having a quail hunting season extending from early May to late July may do little to affect the breeding population of birds in the spring.

Evidence collected on brown quail in Tasmania by the-then Game Management Unit in the early 2000s clearly showed that if the quail habitat could be burnt on a three- to five-year rotation and that feral cat numbers could be reduced, then quail populations rapidly responded. On these properties, quail hunting was an annual event that benefitted hunters and the quail habitat and had no negative effects on quail numbers. For example, on just one property in the Blessington area, quail abundance was about five birds/hectare before burning and feral cat control was implemented. Within two years, at least 50 quail/hectare were regularly seen and 10 birds/hectare could be shot annually. By any international standard, a harvest of 20 per cent is within sustainability guidelines.

Additional information

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