PEST RISK ASSESSMENT

Bobwhite quail

Colinus virginianus

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Latitude42

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About this Pest Risk Assessment
This pest risk assessment is developed in accordance with the *Policy and Procedures for the Import, Movement and Keeping of Vertebrate Wildlife in Tasmania* (DPIPWE 2011). The policy and procedures set out conditions and restrictions for the importation of controlled animals pursuant to s32 of the *Nature Conservation Act 2002*.

For more information about this Pest Risk Assessment, please contact:
Wildlife Management Branch
Department of Primary Industries, Parks, Water and Environment
Address: GPO Box 44, Hobart, TAS. 7001, Australia.
Phone: 1300 386 550
Email: wildlife.reception@dpipwe.tas.gov.au
Visit: www.dpipwe.tas.gov.au

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1. Summary

Bobwhite quails (*Colinus virginianus*) are small galliform birds with rounded wings and a square tail. They are native to northern and central America and can be found from southeastern Canada to central and eastern USA to eastern Mexico and Guatemala. Populations of subspecies *cubanensis* occur on Cuba and the Isle of Pines.

The bobwhite quail has been introduced and re-introduced successfully in parts of the USA. This species also has established introduced populations in Haiti, Dominican Republic, Andros, New Providence, Eleuthera, England, Bahamas, Portugal, Italy, Puerto Rico and New Zealand (Birdlife International 2008, Long 1981, WA Dept Ag 2004).

The natural distribution of bobwhite quail includes areas similar in climate to Tasmania. Bobwhite quail are very adaptable and there is therefore potential for this species to establish in Tasmania. If the bobwhite quail established in Tasmania it is likely to compete with the brown quail (*Coturnix ypsilophora*) and the stubble quail (*Coturnix pectoralis*) for food and other resources. The establishment of the bobwhite quail in Tasmania also has the potential for some impact on agricultural industries as the species is known to be capable of consuming various commodities such as cereal grains, oilseeds, legumes and fruit.

In Tasmania the bobwhite quail is currently a 'controlled animal' under the *Nature Conservation Act 2002*.

2. Introduction

2.1 NAME AND TAXONOMY

Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Galliformes
Family: Odontophoridae
Genus: Colinus
Species: *Colinus virginiana*

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Sub-species or variety: Twenty-two subspecies recognised: *C.v.marilandicus, C.v.virginianus, C.v.floridanus, C.v.cubanensis, C.v.mexicanus, C.v.taylori, c.v.texanus, C.v.ridgwayi, C.v.maculatus, C.v.aridus, C.v.graysoni, C.v.nigripectus, C.v.pectoralis, C.v.godmani, C.v.minor, C.v.atriceps, C.v.thayeri, C.v.harrisoni, C.v.coyolcos, C.v.nelsoni, C.v.salvini,* and *C.v.insignis*

Common names: bobwhite quail, bobwhite, northern bobwhite, common bobwhite, Virginia partridge, Texas partridge, Florida partridge, American quail, partridge

Known hybrids: The bobwhite quail is known to hybridise in the wild and in captivity with the scaled quail (*Callipepla squamata)* and the Californian quail (*Callipepla californica*), and has hybridised with Gambel's quail (*Callipepla gambelii*) in captivity (Johnsgard 1968)

Close relatives: Sometimes considered conspecific with *C.nigrogularis*. Several races have been considered full species.

2.2 DESCRIPTION

Bobwhite quails are small (140 to 170 grams) galliform birds with rounded wings and a square tail. They range in length from 20.3 to 24.7 cm with a wingspan from 9 to 12 cm. They are sexually dimorphic with regard to facial and throat coloration, wing coverts, and beak color. Adult males are distinguished by white facial stripes and throat in contrast to the buff coloration of females and juveniles. The wing coverts of males have sharply contrasting black markings on the feathers while the wing coverts of females lack color distinctions. The base of the mandible is black in males and yellow in females. White edges, dark bars, and vermiculations on the reddish brown back and white breast create a mottled appearance. (Dimmick, 1992). The plumage is extremely variable both within and among races, with the greatest variation on the head and underparts. Races are

separated mainly on plumage, but also on size; the pattern of the white eye stripe bordered by a black and white throat is found in those of the USA and some of Mexico (del Hoyo et al 1997).

2.3 CONSERVATION AND LEGAL STATUS

Populations of northern bobwhite are declining. Habitat loss, particularly due to the increase in large-scale farming and the reduction of fence rows and suitable habitat plots are thought to be the major factor in the decline. One subspecies, the masked bobwhite (*Colinus virginianus ridgwayi*), is considered endangered (Chumchal 2000) The bobwhite quail has suffered a steady, long-term decline in most states in the USA, with the exception of Texas. Mexican populations are poorly known and some subspecies could be threatened (Birdlife International 2011). Changes in agricultural land use (weed removal and herbicide use), forestry (high-density pine plantations), and the need for controlled burning have resulted in widespread habitat fragmentation (Birdlife International 2008).

CONSERVATION STATUS

The bobwhite quail is listed as near threatened by the IUCN. This species has undergone a large and statistically significant decrease over the last 40 years in North America; -82.4% decline over 40 years, equating to a -35.2% decline per decade (Birdlife International 2011).

The subspecies *Colinus virginianus ridgwayi* is listed on Appendix I to the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). The commercial international trade in specimens of species listed on Appendix I is prohibited by CITES.

LEGAL STATUS AUSTRALIA

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) regulates the export and import of species included in the Appendices to CITES under Part 13A. International trade in specimens of the bobwhite quail subspecies *Colinus virginianus ridgwayi* is therefore subject to regulation under this legislation. All other bobwhite quail subspecies are not listed under the EPBC Act.

In Tasmania the bobwhite quail is a controlled animal under the *Nature Conservation Act 2002*.

3. Biology and Ecology

3.1 LIFE HISTORY

Northern bobwhites have a short life span and high mortality rates in the wild. Few individuals live longer than five years, and about 80% live less than one year. Exposure is an important source of mortality during the winter. Deep snows and prolonged periods of cold may cause extensive losses. Also, feeding in agricultural environments can lead to exposure to contaminants which often have lethal effects (Birdlife International 2008).

This species was originally thought to be monogamous, but there is now clear evidence of ambisexual polygamy among bobwhite quails, meaning that both males and females are known to incubate and raise broods with more than one mate during the breeding season (Chumchal 2000).

In North America the breeding season is variable, peaking between April and June (del Hoyo et al 1997). Courtship and pair formation can begin as early as February in south Texas while occurring later at higher latitudes. Nest building, egg laying, and incubation occur intensively from May to August. The beginning of the nesting season in Texas has been tied to rainfall and vegetation growth. Bobwhite quails mate in their first year of life and rear one brood a year. Nests destroyed before hatching will be rebuilt while broods lost after hatching are usually not replaced. South Texas broods have been reported as late as November and December (Chumchal 2000).

The nest is a scrape on the ground, lined with dry grass, leaves or weed stalks, and is usually domed or covered from above by standing vegetation. Multiple hens have been shown to lay eggs into a single nest with average clutch sizes of 12 to 14 eggs. The incubation period is approximately 23 days. Two broods of young may be raised when nesting conditions are favourable (Dimmick 1992, WA Dept Ag 2004, del Hoyo et al 1997). Both parents incubate the eggs, brood the hatchlings, and provide for the young until they reach independence at about 2 weeks old. Both parents have been observed to defend young by attacking perceived aggressors and by performing broken wing displays (Chumchal 2000).

3.2 HABITAT REQUIREMENTS AND PREFERENCES

Bobwhite quail habitat includes pine woodlands, woodland edge, shrubs, agricultural fields, pastures, rangelands, open country with brush and weeds, grasslands, croplands and roadsides (del Hoyo et al 1997, Long 1981).

In forest habitats, bobwhite quails show a clear preference for early successional vegetation created by disturbances from fire, agriculture, and timber-harvesting. In rangeland habitats, bobwhite quails are found in both early and later successional vegetation. Bobwhite quail habitats must contain a diversity of invertebrates, seeds, and herbaceous plants. Cover that provides protection from predators, weather, and nesting material is also essential. Water is not normally an important factor in habitat determination of the bobwhite quail because sufficient water can be obtained from dew. (Birdlife International 2008, Dimmick, 1992)

3.3 NATURAL GEOGRAPHIC RANGE

The bobwhite quail is native to northern and central America. It can be found from southeastern Canada to central and eastern USA to eastern Mexico and Guatemala. Populations of subspecies *cubanensis* occur on Cuba and the Isle of Pines. Highest population densities are reached in the eastern United States and Mexico. Disjunct populations exist in Washington, Oregon, Idaho and northwestern Mexico. (Birdlife International 2008, Dimmick 1992, WA Dept Ag 2004)

The quail is thought to be locally common and was once a popular game bird in the southern states of the USA, but numbers and range have been reduced by agriculture. The bobwhite quail does not move much and this has allowed landowners to effectively manage the birds on relatively small tracts of land (WA Dept Ag 2004).

Figure 1: (Source: BirdLife International 2008).

3.4 INTRODUCED GEOGRAPHIC RANGE

The bobwhite quail has been introduced and re-introduced successfully in parts of the USA. This species also has established introduced populations in Haiti, Dominican Republic, Andros, New Providence, Eleuthera, England, Bahamas, Portugal, Italy, Puerto Rico and New Zealand (Birdlife International 2008, Long 1981, WA Dept Ag 2004). In New Zealand many introductions of the bobwhite quail were largely unsuccessful but small numbers of birds persist in South Auckland and Northern Hawkes Bay (NZ Birds 2006).

It was also introduced successfully to Jamaica, Puerto Rico, Antigua, Guadeloupe, Martinique, Barbados, St Croix, St Kitts and Bermuda. However the bird was successfully removed from these islands (WA Dept Ag 2004).

It has been unsuccessfully introduced in Peru, Canada, Hawaii, France, Ireland, Scotland, China, and the Turks and Caicos Islands. It has probably been unsuccessfully introduced to South Africa (WA Dept Ag 2004).

This species is not recorded on the Global Invasive Species Database (GISD 2011).

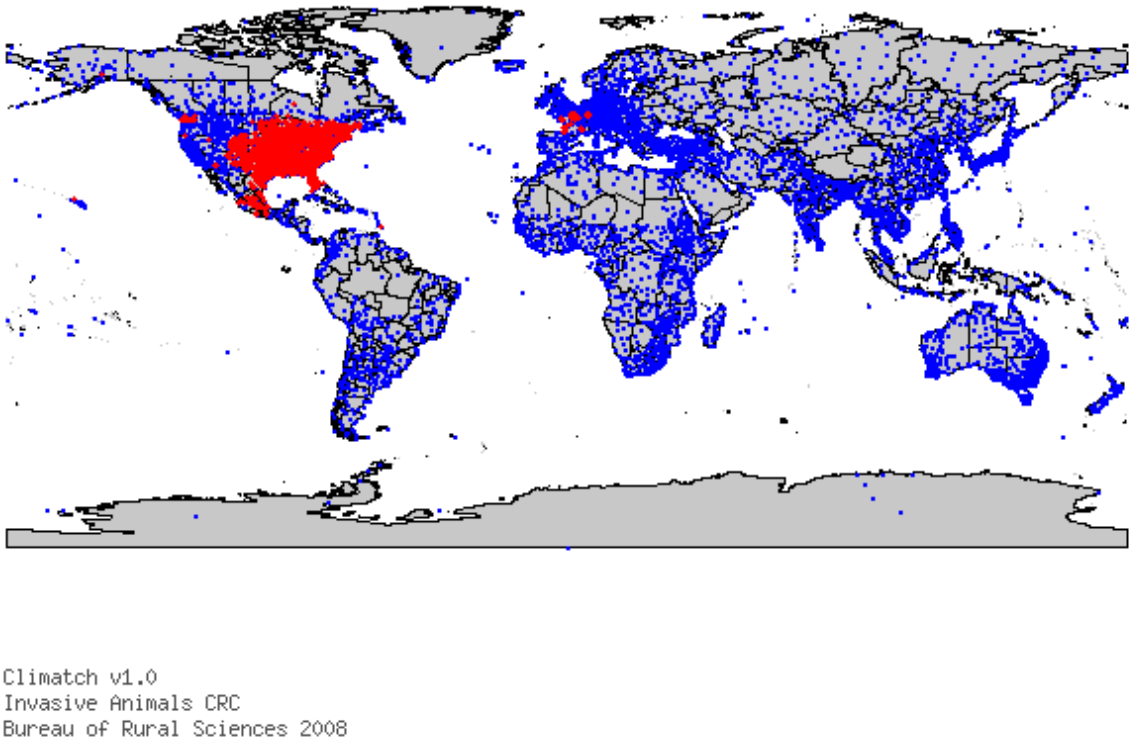

Figure 2: Global distribution of the Bobwhite quail *Colinus virginianus* as selected for climate matching during risk assessment process. (Source: CLIMATCH – http://adl.brs.gov.au:8080/Climatch/)

3.5 POTENTIAL DISTRIBUTION IN TASMANIA

Using modelling applications by the Bureau of Rural Science (DAFF), climate is compared between the species' historical distribution and potential Australian distribution (shown in Figure 2). Modelling indicates that mainland Australia has highly similar climate which may support the establishment of introduced populations. Tasmania has areas where the climate is highly similar (highest climate match score; 8). Bobwhite quail are very adaptable and there is therefore potential for this species to establish in Tasmania.

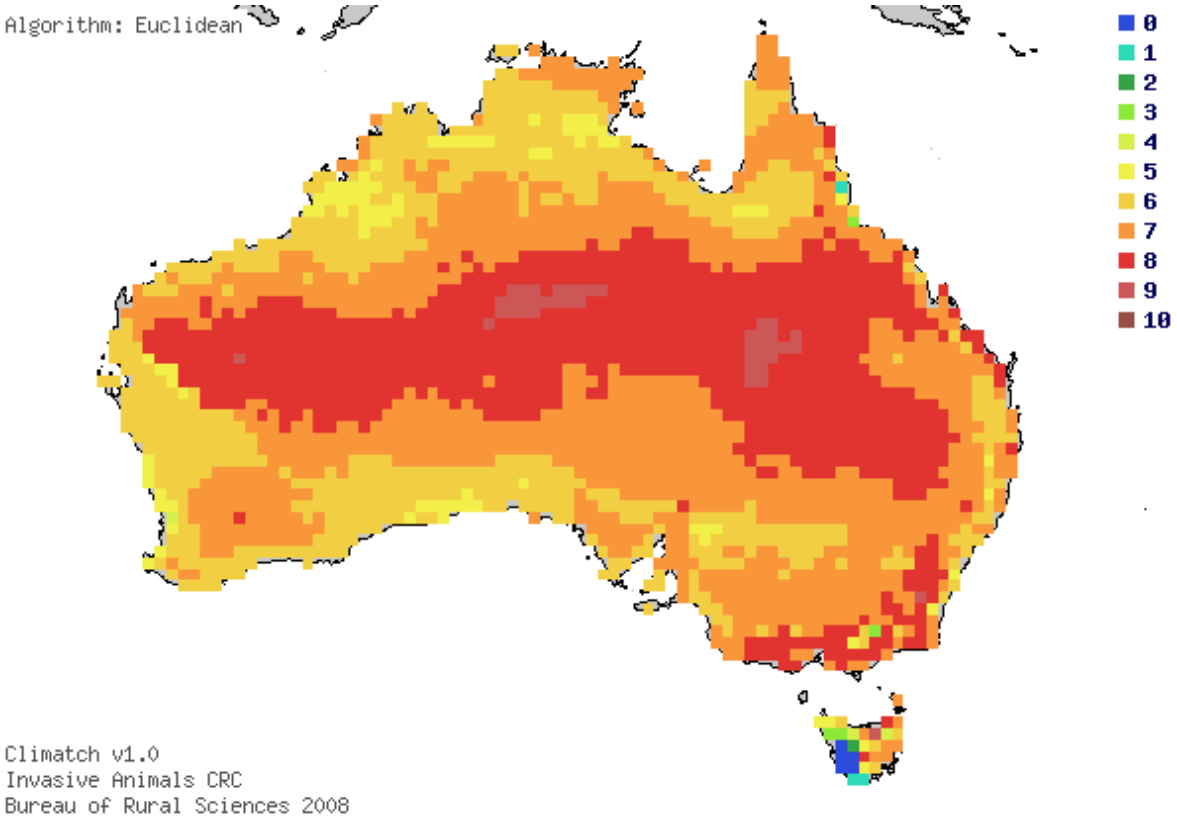

Figure 3: Climate match results showing the potential geographic distribution on the Bobwhite quail in Australia. (Source: CLIMATCH – http://adl.brs.gov.au:8080/Climatch/)

3.6 DIET AND FEEDING BEHAVIOUR

The bobwhite quail diet consists mainly of seeds, but also includes small fruits, green leafy material, and insects. Young birds feed heavily on insects; animal matter also makes up a high percentage of the adult diet in warmer months. Food supply is influenced by local distribution and abundance of food plants and their seeding or fruiting characteristics (NOAA 2011, Chumchal 2000). Approximately 85% of the diet is vegetation and 15% animal matter, however, the relative quantity of each is seasonal (Birdlife International 2008). Food has been reported to be a limiting factor to

the health of bobwhite quail populations, largely due to the selectivity of quail and the availability of food types (Chumchal 2000).

In early spring, leafy material is an important source of vitamins. Insects are important from spring until autumn; during these months they may constitute a quarter of the diet. Females consume more insects than males in response to elevated need for protein during egg laying. Fruits are also an important summer source of carbohydrates. Seeds and legumes constitute the majority of the bobwhite diet in fall and winter. Hatchlings are completely dependent on insects as a food source (Chumchal 2000).

Bobwhites are typically diurnal. Feeding is most active during the early morning and late afternoon. They can fly relatively short distances, with the average flight lasting 5.1 seconds, but spend most of their time on the ground. (Brennan 1999, Dimmick 1992)

3.7 SOCIAL BEHAVIOUR AND GROUPINGS

Beginning in late summer bobwhites form coveys of parents, offspring, and unsuccessful breeding pairs. Coveys are fluid and by autumn family groups have become dispersed due to apparently random joining and leaving of individuals (Dimmick 1992). Home range sizes are highly variable depending on habitat conditions and reproductive status of individuals. Unmated males roam over larger areas than mated males. (Brennan 1999). Bobwhites have a male social hierarchy system (Stokes 1967).

Populations are typically sedentary, year-round residents, particularly in areas of moderate to high quality habitat. Population density depends upon many factors, such as frequency and intensity of disturbance. Densities of 2.2 to 4.4 birds/hectare are typical in high quality habitat, and densities can reach up to 6.6 birds/hectare (Chumchal 2000). After the breeding season they live together in a covey of up to 30 individuals, huddling together at night and in cold weather. When danger threatens, the birds fly out in all directions, startling the would-be predator, which often catches none of the quail (WA Dept Ag 2004).

The well known "bob-white" call is a minor part of northern bobwhites' overall vocal repertoire. Their entire vocal array is known and has been classified into calls based on group movement, food-finding, avoidance of enemies, and reproduction (sexual and parental). Non-vocal interactions are diverse and characteristic of many small quails. For example, head-shaking, head-scratching and preening are characteristic of dominant birds (Birdlife international 2008).

3.8 NATURAL PREDATORS AND DISEASE

Predation is an important source of mortality for northern bobwhites. Known predators include Cooper's hawks, raccoons, opossums, skunks and foxes. When adults with chicks encounter predators, they perform distraction displays such as fluttering and wing-dragging. This anti-predator behavior seems to be learned and is rarely seen in captive-reared birds. Their coloration helps to make them hard to see in the dense undergrowth that is their preferred habitat (Brennan 1999).

Bobwhite quails are host to parasitic worms. These worms do not often kill their host, but their presence is associated with low body weight in bobwhite quails and this may negatively influence survival and reproduction. Bobwhite quails also host a wide variety of external parasites such as lice, ticks, mites, and fleas (Brennan 1999).

Potential predators of the bobwhite quail in Tasmania are raptors (harrier and peregrine falcon), quolls, Tasmanian devils, feral cats and foxes. Snakes may predate on chicks.

3.9 THREAT TO HUMAN SAFETY

There are no known adverse affects of northern bobwhites on humans (Chumchal 2000).

3.10 HISTORY AS A PEST

Although the bobwhite quail has been successfully introduced to several countries (see Section 3.4), it is not regarded as an environmental or agricultural pest. This species has the attributes making it capable of damaging some agricultural commodities (such as cereal grains, oilseeds, legumes, fruit and vegetables) but there are no reports or other evidence that it has caused damage in any country.

3.11 POTENTIAL IMPACT IN TASMANIA

If the bobwhite quail established in Tasmania it is likely to compete with the brown quail (*Coturnix ypsilophora*) and the stubble quail (*Coturnix pectoralis*) for food and other resources. The bobwhite quail has a moderate climate match with Tasmania (score of 13) and a high percentage of the range of the brown quail and stubble quail overlaps with areas with which there is a good climate match with the bobwhite quail (grids with climate match scores 7 & 9).

The establishment of the bobwhite quail in Tasmania has the potential for some impact on agricultural industries as the species is capable of utilising various commodities such as cereal grains, oilseeds, grain legumes and fruit. Agricultural areas in Tasmania overlap with areas with which there is a moderate climate match with the bobwhite quail (grids with climate match scores 5-9). This means that the bobwhite quail, if established, is likely to come into contact with these commodities.

4. Risk Assessment

4.1 PREVIOUS RISK ASSESSMENTS

The Vertebrate Pests Committee (2007) assessed bobwhite quails as being in the Extreme Threat Category. Species placed in the Extreme Threat Category "...should not be allowed to enter, nor be kept in any State or Territory. (Special consideration may be given to scientific institutions on a case by case basis.) Any species that has not been assessed previously should be considered to be in the Extreme Threat Category and should be treated accordingly, until a risk assessment is conducted" (Vertebrate Pests Committee 2007).

The Invasive Animals Cooperative Research Centre assessed the risk posed by bobwhite quail by applying a risk assessment model. This assessment concluded that the bobwhite quail posed an "extreme" risk of establishment (Bomford 2008). A previous risk assessment had also concluded that the bobwhite quail would compete with species of native quail (WA Dept Ag 2004).

4.2 RISK ASSESSMENT

The following risk assessment determines the risk of bobwhite quail to Tasmania using the Bomford model (2008) and proposes assigned threat categories and import classifications for the species.

Species:	**Common name (*Scientific name*)**	
Date of Assessment:	23 March 2011	
Literature search type and date:	See attached references	
Factor	**Score**	
A1. Risk posed from individual escapees (0-2)	0	Low risk
A2. Risk to public safety from individual captive animals (0-2)	0	Low risk
Stage A. Risk posed by individual animals (risk that a captive or escape animal would harm people)	**Public Safety Risk Score** = A1 + A2 = 0	**Public Safety Risk Ranking** A = 0, NOT DANGEROUS
B1. Climate match score (1-6)	4	Climate match score = 13
B2. Exotic population established overseas score (0-4)	4	Introduced populations in US, Haiti, Dominican republic, Andros, New Providence, Eleuthera, England, Bahamas, China, France, Italy, Portugal, Puerto Rico, Turks and Caicos Is, Virgin Is and New Zealand (Birdlife International, IBOW).
B3. Overseas range size score (0-2)	1	Range = 19,769,048 km^2
B4. Taxonomic class score (0-1)	0	Bird
Stage B. Likelihood of establishment (risk that a particular species will establish a wild population in Tasmania)	**Establishment Risk Score** = B1 + B2 + B3 + B4 = 9	**Establishment Risk Ranking** B = 9-10, SERIOUS

C1. Taxonomic group (0-4)	0	Family Odontophoridae. No native species in the same genus.
C2. Overseas range size (0-2)	1	Range = 19,769,048 km^2
C3. Diet and feeding (0-3)	0	Bird
C4. Competition for native fauna for tree hollows (0-2)	0	Nest a depression in the ground lined with dead vegetation.
C5. Overseas environmental pest status (0-3)	0	No record of environmental pest
C6. Climate match to areas with susceptible native species or communities (0-5)	3	10 grid squares with climate match scores 7-9 overlap with the range of brown quail and stubble quail - competition
C7. Overseas primary production (0-5)	0	No record of agricultural pest
C8. Climate match to susceptible primary production (0-5)	3	The range of susceptible commodities (cereal grains, oilseeds, grain legumes, fruit vegetables and other crops) is covered by grid squares with climate match score 5-9.
C9. Spread disease (1-2)	2	Bird
C10. Harm to property (0-3)	0	Low risk
C11. Harm to people (0-5)	0	Nil risk
Stage C. Consequence of Establishment (risk that an established population would cause harm)	**Consequence Risk Score** = sum of C1 to C11=9	**Consequence Risk Ranking** C = 9-14, MODERATE
ASSIGNED THREAT CATEGORY:	**SERIOUS**	
PROPOSED IMPORT CLASSIFICATION:	**IMPORT RESTRICTED TO THOSE LICENCE HOLDERS APPROVED FOR KEEPING SERIOUS THREAT SPECIES**	

5. References

BirdLife International 2008. *Colinus virginianus*. In: IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4. <www.iucnredlist.org>. Downloaded on 09 February 2011.

BirdLife International 2011. Species factsheet: *Colinus virginianus*. Downloaded from http://www.birdlife.org on 19/04/2011.

National Oceanic and Atmospheric Administration's Coastal Services Centre (NOAA), 2011. Ashepoo-Combahee-Edisto Basin Characterisation study. Downloaded from http://nerrs.noaa.gov/Doc/SiteProfile/ACEBasin/html/sppgal/sgbirds.htm Accessed April 2011

Bomford, M (2008) *Risk Assessment Models for the Establishment of Exotic Vertebrates in Australia and New Zealand*. Invasive Animals Cooperative Research Centre, Canberra

Brennan, L. 1999. Northern Bobwhite. The Birds of North America, No. 397: 1-28.

Chumchal, M. 2000. "Colinus virginianus" (On-line), Animal Diversity Web. Accessed February 08, 2011 http://animaldiversity.ummz.umich.edu/site/accounts/information/Colinus_virginianus.html.

del Hoyo J., Elliott A. and Sargatal J. eds. (1997) *Handbook of Birds of the World Vol 4: Sangrouse to Cuckoos.* Lynx Edicons, Barcelona

Dimmick, R. 1992. Northern bobwhite (-Colinus virginianus-): Sec 4.1.3. U.S. Army Corps of Engineers wildlife resources manual.

Global Invasive Species Database (GISD). 2011. Downloaded from http://www.issg.org/database/welcome/ Accesses April 2011.

Johnsgard, P.A. 1968. A summary of intergeneric new world quail hybrids, and a new intergeneric hybrid combination, Department of Zoology, University of Nebraska.

Long, J.L. (1981) *Introduced birds of the world*. Agricultural Protection Board of Western Australia, AH and AW Reed Pty Ltd, Wellington, New Zealand

NZ Birds. 2006. Bobwhite quail. Greytown, Wairarapa. Downloaded from http://www.nzbirds.com/birds/quailbobwhite.html Accessed April 2011.

Stokes, A. 1967. Behavior of the Bobwite, Colinus virginianus. The Birds of North America Online (Online source).

Vertebrate Pest Committee (2007) List of exotic vertebrate animals in Australia, revised 2007,

WA Department of Agriculture and Food (WA Dept Ag). 2011. Invasive species fact sheet: Bobwhite quail. Downloaded from http://www.agric.wa.gov.au/PC_94161.html?s=1320229316 Accessed April 2011.

6. Appendices

APPENDIX A: CALCULATING TOTAL COMMODITY DAMAGE SCORE

Column 1	Column 2	Column 3	Column 4	Column 5
Industry	**Commodity Value Index (CVI)**	**Potential Commodity Impact Score (PCIS, 0-3)**	**Climate Match to Commodity Score (CMCS, 0-5)**	**Commodity Damage Score (CDS columns 2 x 3 x 4)**
Cattle (includes dairy and beef)	11	0	0	0
Timber (includes native and plantation forests)	10	0	0	0
Aquaculture	6	0	0	0
Sheep (includes wool and meat)	5	0	0	0
Vegetables	5	1	4	20
Fruit (includes wine grapes)	5	1	4	20
Poultry (including eggs)	1.5	0	0	0
Cereal grain (includes wheat, barley, sorghum etc)	1	2	4	8
Other crops and horticulture (includes nuts and flowers)	1	1	4	4
Pigs	1	0	0	0
Bees (includes honey, beeswax, and pollination)	0.5	0	0	0
Oilseeds (includes canola, sunflower etc)	0.5	2	4	4
Grain legumes (includes soybeans)	0.3	2	4	2.4
Other livestock (includes goats and deer)	0.3	0	0	0
Total Commodity Damage Score (TCDS)				58.4

C8. Climate match to susceptible primary production (on a scale of 0–5) | 3 |

APPENDIX B: ASSIGNING SPECIES TO THREAT CATEGORIES

A: Danger posed by individual animals (risk a captive or escaped individual would harm people)	**B: Likelihood of establishment** (risk that a particular species will establish a wild population in Tasmania)	**C: Consequence of establishment** (risk that an established population would cause harm)	**Threat category**	**Implications for any proposed import into Tasmania**
Highly, Moderately or Not Dangerous	Extreme	Extreme	Extreme	Prohibited
Highly, Moderately or Not Dangerous	Extreme	Serious		
Highly, Moderately or Not Dangerous	Extreme	Moderate		
Highly, Moderately or Not Dangerous	Extreme	Low		
Highly, Moderately or Not Dangerous	Serious	Extreme		
Highly, Moderately or Not Dangerous	Serious	Serious		
Highly, Moderately or Not Dangerous	Moderate	Extreme		
Highly, Moderately or Not Dangerous	**Serious**	**Moderate**	**Serious**	**Import restricted to those licence holders approved for keeping serious threat species**
Highly, Moderately or Not Dangerous	Serious	Low		
Highly, Moderately or Not Dangerous	Moderate	Serious		
Highly Dangerous	Moderate	Moderate		
Highly Dangerous	Moderate	Low		
Highly, Moderately or Not Dangerous	Low	Extreme		
Highly, Moderately or Not Dangerous	Low	High		
Highly Dangerous	Low	Moderate		
Highly Dangerous	Low	Low		
Moderately or Not Dangerous	Moderate	Moderate	Moderate	Import restricted to those licence holders approved for keeping Moderate Threat species
Moderately or Not Dangerous	Moderate	Low		
Moderately or Not Dangerous	Low	Moderate		
Moderately Dangerous	Low	Low		
Not Dangerous	Low	Low	Low	Import Permitted
Unknown	Any value	Any value	Extreme until proven otherwise	Prohibited
Any Value	Unknown	Any value		
Any Value	Any value	Unknown		
Unassessed	Unassessed	Unassessed		

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