

Table 19: Score sheet 1 of 8 – bush size and shape

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Bush vitality visual assessment	Site name		
	Location		Date
(A) Native forest size and shape	Select one category only. One score from (A.1; A.2 or A.3).	Criteria score	Your score
(A.1) Size – over 25ha	Explanation		
Average width over 100m	Large habitat area, compact shape – even perimeter, large forest interior compared to edge forest. Site can support a full range of native plants and animals found in the region.	16	
Average width 20 to 100m	Large habitat area, less compact shape, likely to be long and thin in shape or convoluted perimeter, some forest interior, considerable edge forest.	12	
Average width under 20m	Large habitat area, very long and narrow shape, likely to be forest along a river margin, no forest interior, all edge forest. Site can support good populations of native regeneration and shrubs and may sustain original populations of the more common native plants and animals found in the region.	6	
(A.2) Size 5 to 25ha	Explanation		
Average width over 100m	Moderate sized habitat area, compact shape, even perimeter or long and narrow for large-sized sites, substantial forest interior, some edge forest. Site can support good populations of the more common native plants and animals found in the region.	14	
Average width 20 to 100m	Moderate sized habitat area, less compact shape, likely to be long and thin in shape or convoluted perimeter, some forest interior, considerable edge forest.	10	
Average width under 20m	Moderate sized habitat area, long and narrow shape, likely to be forest along a river margin, no forest interior, all edge forest. Site can support good populations of native regeneration and shrubs and may sustain original populations.	4	
(A.3) Size – less than 5ha	Explanation		
Average width over 100m	Small habitat area, very compact shape, some forest interior but size means considerable edge forest. Site can support moderately good populations of the more common native plants and animals found in the region.	12	
Average width 20 to 100m	Small habitat area, less compact shape, likely to be long and thin in shape or convoluted perimeter, mostly edge forest. Site can support more common native plants and animals found in the region but in lower abundance.	8	
Average width under 20m	Small habitat area, narrow strip, likely to be forest along a river margin, no forest interior, all edge forest. Site can support good populations of native regeneration and shrubs and may sustain fragile original populations.	2	
A) Shape and size score	Excellent	16	
	Good	12	
	Fair	8	

Table 20: Score sheet 2 of 8 – bush connectivity

Bush vitality visual assessment Score categories B.1 to B.3		Site name	
		Location Date	
(B) Native forest habitat connections	Your comments	Criteria score	Your score
(B.1) Native forest habitat present within 2km of site			
A few large sites (over 25 ha: 1/4 of 1km ² grid on 1:50,000 scale topographic map).		6	
Many small sites (more than 3 sites 1-25ha)		5	
A few small sites (less than 3 sites 1-25ha)		4	
Compatible exotic plants scattered		3	
No native forest habitat present within 2km of site		0	
(B.2) Native forest habitat present between 2 and 5km from site			
A few large sites (over 25ha).		5	
Many small sites (more than 5 sites 1-25ha)		3	
A few small sites (less than 5 sites 1-25ha)		2	
Compatible exotic plants scattered		2	
No native forest habitat present between 2-5km distant		0	
(B.3) Native forest habitat present between 5 and 10km from site			
	Exchange barred for many native species:		
A few large sites (over 25ha)		3	
Many small sites (more than 10 sites 1-25ha)		2	
A few small sites (less than 10 sites 1-25ha)		1	
Compatible exotic plants scattered		1	
No native forest habitat present between 5-10km distant		0	
B) Native forest habitat connections score		Excellent	14
		Good	10
		Fair	6

You may check and tick this category wherever it applies. It is independent of the other scoring system.

(B.4) Bush-wetland connectivity	Upstream	Downstream	Native fish access	Inflow	Outflow
Fenced. Native bush or wetland plant corridors on stream banks to next wetland site			No impediments to fish migration. Natural permanent water flow.		
Fenced. Mainly exotic plant corridors on stream banks to next wetland site			Seasonal migration barriers. Temporarily obstructed flow, dam; weir		
Unfenced. No corridors on stream banks to next wetland site (exotic grass only)			Permanent migration barriers to fish Culvert perched (>10cm); dam; weir		

Its purpose: consider restoring forest wetland connectivity when developing your bush management strategy

Table 21: Score sheet 3 of 8 – emergent storey

Table 21: Score sheet 3 of 8 – emergent storey			
Forest structure Score categories C.1 to C.6		Site name	
		Location Date.....	
(C.1) EMERGENT COVER			Criteria score
More than 20%	Obvious emergent tier with more than 20% or 20 trees present.	10	Your score
Less than 20%	Sparse emergent trees with less than 20% and more than 10 trees present.	6	
None	No emergent trees present.	0	
RESOURCES (1) Record key plants found and (2) Note Fruiting/Buds/Flowering: Many (+) or Few (-)			
(C.2) Winter-early spring food supply		Your comments	Criteria score
		Your score	
No species	None	0	
1–2 species; Many individual plants ³⁴	Fair	2	
3 species or more; Many individual plants	Good	3	
(C.3) Spring-summer food supply			
No species	None	0	
1–2 species; Many individual plants	Fair	1	
3 species or more; Many individual plants	Good	2	
(C.4) Autumn migration food supply			
No species	None	0	
1–2 species; Many individual plants	Fair	1	
3 species or more; Many individual plants	Good	2	
EXOTIC PESTS	Score threats to the emergent layer		Criteria score
(C.5) Pest animals	Comprehensive animal pest control effectively applied (5% possum trap catch, rodent and mustelid/cat control). Score 1 for effective control of each pest class: Predators or omnivores.		2
	No control. Predator, omnivore sign (Leaf browse, bark bitemarks)		0
(C.6) Pest plants	No incompatible or listed plant pests. Score 1 for absence or effective control of each pest class: climbers; trees.		2
	No control. Each pest class present (including fire, cold or shade-tolerant trees)		0
(C) EMERGENT LAYER SCORE		Excellent	20
		Good	16
		Fair	14

34 Distinguish 2 abundance levels for each species:

- 'Many' stands for more than 10 trees of each species;
- 'Few' stands for less than 10 plants of each species

You may score an intermediate number if you find only 'few' plants of a kind. Take note of it. Remedy as you implement your bush management strategy.

BUSH VITALITY ASSESSMENT

Table 22: Score sheet 4 of 8 – canopy storey

Forest structure Score categories D.1 to D.6	Site name
	Location Date

(D.1) CANOPY AND SUBCANOPY COVER		Criteria score	Your score
Canopy cover greater than 90%.	Will have a more or less continuous canopy cover.	4	
Subcanopy cover greater than 40%		4	
Canopy cover 50–90%.	Disturbance to canopy with some gaps but limited in extent.	2	
Subcanopy cover 10–40%.	Subcanopy with some gaps but limited in extent.	2	
Canopy cover less than 50%.	Canopy highly disturbed with obvious gaps, sometimes large in extent.	1	
Subcanopy cover less than 10%	Subcanopy with major gaps; past grazing pressure.	1	

RESOURCES (1) Record key plants found and (2) Note Fruiting/Buds/Flowering: Many (+) or Few (-)			
(D.2) Winter-early spring food supply	Your comments	Criteria score	Your score
No species	None	0	
1–3 species; Many individual plants ³⁵	Fair	2	
4 species or more; Many individual plants	Good	3	
(D.3) Spring-summer food supply			
No species	None	0	
1–3 species; Many individual plants	Fair	2	
4 species or more; Many individual plants	Good	3	
(D.4) Autumn migration food supply			
No species	None	0	
1–3 species; Many individual plants	Fair	1	
4 species or more; Many individual plants	Good	2	

(D.5) Pest animals Your Regional Council can help with tracking tunnels, possum trap catch monitoring and pest control support.			
Comprehensive animal pest control effectively applied (5% possumtrap catch, rodent and mustelid/cat control). Score 1 for effective control of each pest class: predators or omnivores		2	
No control. Predator, omnivore sign (Leaf browse, bark bite marks)		0	
(D.6) Pest plants Your Regional Council can help with plant pest control advice and support.			
No incompatible or listed plant pests. Score 1 for absence or effective control of each pest class: climbers; shrubs; trees.		3	
No control. Each pest class present (including fire, cold or shade-tolerant trees)		0	

(D) CANOPY AND SUBCANOPY SCORE			
	Excellent	18	
	Good	15	
	Fair	10	

35 Distinguish 2 abundance levels for each species:
 • 'Many' stands for more than 10 trees of each species;
 • 'Few' stands for less than 10 plants of each species
 You may score an intermediate number if your find only "few" plants of a kind. Take note of it.
 Remedy as you implement your bush management strategy.

Table 23: Score sheet 5 of 8 – understorey and regeneration

Forest structure Score categories E.1 to E.6	Site name
	Location Date

(E.1) UNDERSTOREY AND REGENERATION COVER		Criteria score	Your score
Shrub tier greater than 40% cover. Seedlings common or abundant	Understorey intact, shrub and ground layer vegetation in good abundance including good numbers of seedlings.	6	
Shrub tier 10–40% cover. Some seedlings present.	Understorey partially intact, sparser shrubs, some seedling regeneration, moderate levels of vegetation browse may be visible.	3	
Shrub tier less than 10% cover. Seedlings few or absent.	Understorey highly disturbed, little vegetation present, few or no seedlings present, high levels of vegetation browse may be visible.	1	

RESOURCES (1) Record key plants found and (2) Note Fruiting/Buds/Flowering: Many (+) or Few (-)			
(E.2) Winter-early spring food supply	Your comments	Criteria score	Your score
No species	None	0	
1–3 species; Many individual plants ³⁶	Fair	2	
4 species or more; Many individual plants	Good	3	
(E.3) Spring-summer food supply			
No species	None	0	
1–3 species; Many individual plants	Fair	1	
4 species or more; Many individual plants	Good	2	
(E.4) Autumn migration food supply			
No species	None	0	
1–3 species; Many individual plants	Fair	1	
4 species or more; Many individual plants	Good	2	

(E.5) Stock access to bush	Criteria score	Your score
Never, or over 10 years ago. Score 1 for every 2 years of protection from browsing or sheltering stock.	5	
Signs of access within past 2 years	0	

(E.6) Pest animals Your Regional Council can help with tracking tunnels, possum trap catch monitoring and pest control support.		
Comprehensive animal pest control effectively applied (5% possum trap catch). Score 1 for effective control of each pest class: predators, omnivores or browsers	3	
No control: Signs of predators, omnivores and/or browsers.	0	

(E.7) Pest plants Your Regional Council can help with plant pest control advice and support.		
No incompatible or listed plant pests. Score 1 for absence or effective control of each pest class: climbers and groundcover; shrubs; trees.	3	
No control. Each pest class present (including shade-tolerant or incompatible juvenile plants)	0	

(E) UNDERSTOREY/REGENERATION SCORE			
	Excellent	22	
	Good	18	
	Fair	12	

36 Distinguish 2 abundance levels for each species:
 • 'Many' stands for more than 10 trees of each species;
 • 'Few' stands for less than 10 plants of each species
 You may score an intermediate number if your find only "few" plants of a kind. Take note of it. Remedy as you implement your bush management strategy.

Table 24: Score sheet 5 of 8 – forest edge and shrubs

Forest structure	Site name
Score categories F.1 to F.6	Location Date

(F.1) EDGE AND REGENERATING SHRUB		Criteria score	Your score
Edge or regenerating shrub entirely native	Best regenerative potential for the full range of native species.	6	
Native plants (>50%) and compatible exotics.	Advanced native regeneration, compatible exotic plants (such as tree-lucerne) near edge.	5	
Compatible exotic (>50%) and native plants.	Native bush and regeneration sheltered by compatible exotic shrubs and trees (tree lucerne, poplars etc.).	4	
Incompatible exotic <i>shelterbelt</i> protecting native bush from prevailing wind.	Native bush and regeneration sheltered by a row of pines, macrocarpa, eucalypts etc.	1	
Incompatible exotic <i>plantations</i> around bush.	Adverse conditions for bush patch's future. Sparse native regeneration on pine litter (acidic humus).	0	

RESOURCES (1) Record key plants found and (2) Note Fruiting/Buds/Flowering: Many (+) or Few (-)			
(F.2) Winter-early spring food supply	Your comments	Criteria score	Your score
No species	None	0	
1–3 species; Many individual plants ³⁷	Fair	2	
4 species or more; Many individual plants	Good	3	
(F.3) Spring-summer food supply			
No species	None	0	
1–3 species; Many individual plants	Fair	1	
4 species or more; Many individual plants	Good	2	
(F.4) Autumn migration food supply			
No species	None	0	
1–3 species; Many individual plants	Fair	1	
4 species or more; Many individual plants	Good	2	

(F.5) Stock control/fencing	Criteria score	Your score
Fence in good condition around entire perimeter	3	
Partly. Stock access occasionally possible	0	

(F.6) Pest animals Your Regional Council can help with tracking tunnels, possum trap catch monitoring and pest control support.		
Comprehensive animal pest control effectively applied (5% possum trap catch). Score 1 for effective control of each animal pest class: predators, omnivores or browsers	3	
No control: Signs of predators, omnivores and/or browsers.	0	

(F.7) Pest plants Your Regional Council can help with plant pest control advice and support.		
No incompatible or listed plant pests. Score 1 for absence or effective control of each pest class: climbers and groundcover; shrubs; trees.	3	
No control. Each pest class present (including fire, cold or shade-tolerant trees of any age)	0	

(F) EDGE AND REGENERATING SHRUB SCORE			
	Excellent	22	
	Good	17	
	Fair	13	

³⁷ Distinguish 2 abundance levels for each species:

- “Many” stands for more than 10 trees of each species;
- “Few” stands for less than 10 plants of each species

You may score an intermediate number if your find only “few” plants of a kind. Take note of it. Remedy as you implement your bush management strategy.

Table 25: Score sheet 7 of 8 – native animals

Native animals	Site name
	Location Date

Your comments

(G.1) Key animals sustaining bush vitality	Record numbers seen and where observed	Top score	Your score
Bellbird		3	
Kereru		3	
Tui		3	
Stitchbird		3	
Silvereye		3	
Forest geckos and skinks		2	
Beech scale insect (sooty mould)		3	
Native bees		2	
Hoverflies		2	
Bumble bees		1	

(G.2) Animals indicating habitat intactness	Record numbers seen and where observed	Top score	Your score
Tomtit		2	
Robin		2	
Rifleman		2	
Parakeet		2	
Kaka		2	
Kiwi		2	
Kokako		2	
Whitehead		1	
Fernbird		1	
Stick insect		1	
Weta		1	
Giant land snail		1	
Peripatus		1	

(G.1) Keystone animal score	Excellent	25	
(G.2) Indicator animal score	Excellent	20	

BUSH VITALITY ASSESSMENT

Table 26: Score sheet 8 of 8 – summary scores for each category

Table 26: Score sheet 8 of 8 – summary scores for each category				
Summary scores for the entire bush site		Site Name:		
		Location: Date:		
Shape	Your comments:		Top score	Your score
	A) Shape and Size score		16	
	B) Connectivity score		14	
Spatial integrity score	Sum of (A + B.1 + B.2 + B.3)	30		
Structure	C.1) Emergent cover score		10	
	D.1) Canopy and subcanopy cover score		8	
	E.1) Understorey/regeneration cover score		6	
	F.1) Edge and regenerating shrub score		6	
	Forest structure integrity score	Sum of forest storeys and edge integrity	30	
Resources	Winter and early spring resources Sum of: (C.2 + D.2 + E.2 + F.2)		12	
	Spring and summer resources Sum of: (C.3 + D.3 + E.3 + F.3)		10	
	Autumn migration resources Sum of: (C.4 + D.4 + E.4 + F.4)		8	
	Total resource availability score	Yearly food supply continuity	30	
Pests	Animal pest control score Sum of: (C.5 + D.5 + E.5 + E.6 + F.5 + F.6)		18	
	Plant pest absence score Sum of: (C.6 + D.6 + E.7 + F.7)		12	
	Total pest pressure score	Freedom from plant and animal pests. Sum of pest absence	30	
Bush Vitality	BUSH DIAMOND SCORE Sum of spatial and structural integrity; resource availability and pest pressure scores		Excellent Good over Fair over	4x30 4x25 4x20
	G.1) Key animal score		25	
	G.2) Indicator animal score		20	
	Total native animal score	Compare with: 'Bush diamond score'	45	
BUSH VITALITY SCORE		Excellent over Good over Fair over	150 120 90	

Table 27: Summary score charts

