

# 05

## 2017臺灣陸域哺乳類 紅皮書名錄

The Red List of  
Terrestrial Mammals of Taiwan, 2017



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■ *Manis pentadactyla pentadactyla*  
穿山甲 Formosan pangolin  
NVU B1b(iii)c(iv)  
游崇璋 / 攝

## 目錄照片 /

■ *Viverricula indica taivana*  
麝香貓 Formosan small Indian civet  
NVU B1ab(iii)  
鄭錫奇 / 攝

## 2017 臺灣陸域哺乳類紅皮書名錄

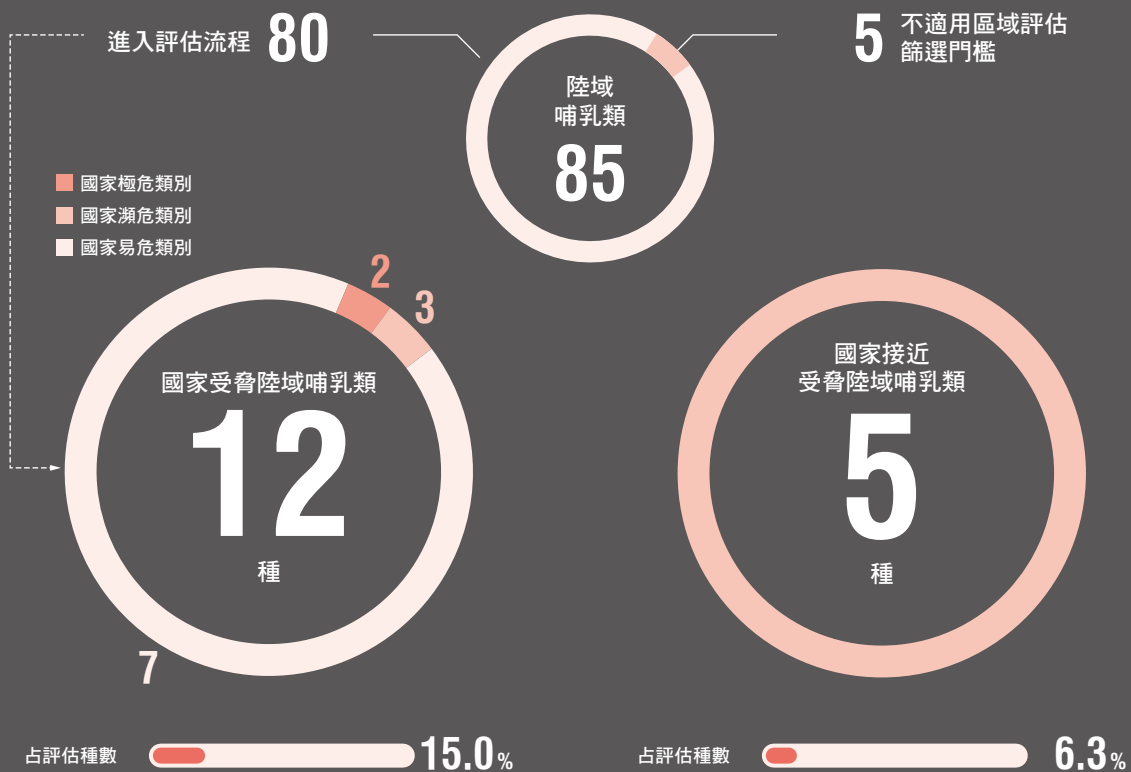
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### 摘要

本報告依據國際自然保育聯盟 (International Union for Conservation of Nature, IUCN) 建議類別與標準對所有臺灣野生陸域哺乳類動物進行國家紅皮書名錄評估。納入評估候選的陸域哺乳類共 85 種，其中 5 種不適用 (Not Applicable) 區域評估篩選，80 種進入評估流程。結果臺灣地區有 12 種國家受脅 (Nationally Threatened) 陸域哺乳類動物，其中屬於國家極危 (Nationally Critical) 類別有 2 種 (臺灣狐蝠、歐亞水獺)，屬於國家瀕危 (Nationally Endangered) 類別有 3 種 (霜毛蝠、臺灣黑熊、石虎)，屬於國家易危 (Nationally Vulnerable) 類別有 7 種 (臺灣無尾葉鼻蝠、金黃鼠耳蝠、水鼩、黃喉貂、臺灣小黃鼠狼、麝香貓、穿山甲)。另有 5 種歸於國家接近受脅 (Nationally Near-threatened) 類別 (黑腹絨鼠、高山田鼠、食蟹獾、臺灣水鹿、臺灣野山羊)。國家受脅及接近受脅陸域哺乳類種數分別占評估種數的 15.0% 及 6.3%。另出現於臺灣的全球受脅陸域哺乳類有 4 種，其中 2 種屬於國家受脅 (臺灣黑熊、穿山甲)，1 種屬於國家接近受脅 (臺灣水鹿)，1 種為國家滅絕 (Nationally Extinct)(臺灣雲豹)。





## 1. 前言

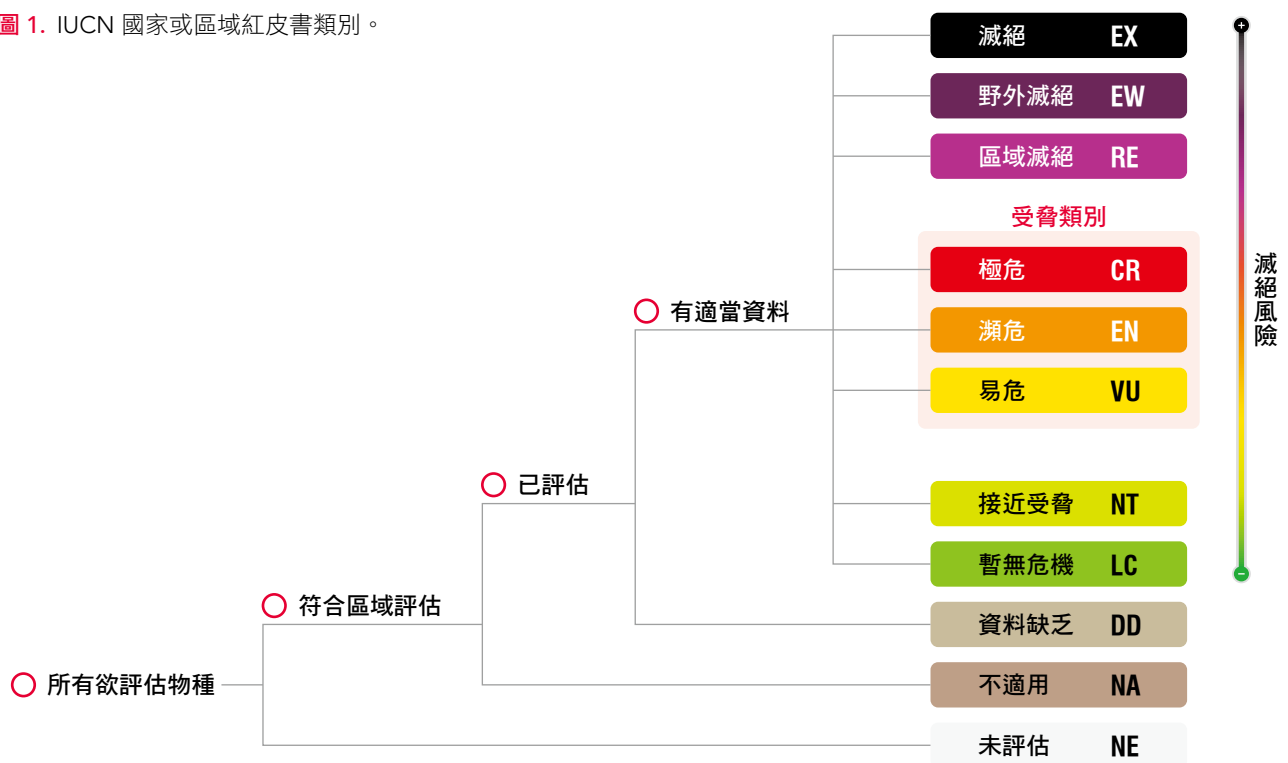
物種或分類群 (taxon) 面臨滅絕的風險是保育經營管理的重要課題。依據受威脅程度所列出的清單是復育計畫、研究、監測與保育措施排列優先順序的參考依據，同時也是爭取社會支持棲地保護及輔助資源分配決策的重要工具 (Townsend *et al.* 2007)。

由國際自然保育聯盟 (International Union for Conservation of Nature, IUCN) 物種存續委員會 (Species Survival Commission) 負責的 IUCN 紅皮書名錄 (IUCN Red List of Threatened Species)，自 1964 年開始發布以來，已逐步成為評估全球物種保育狀況與變化趨勢最重要的參考依據 (Rodrigues *et al.* 2006；IUCN 2016)，另其類別 (圖 1) 及評估

標準 (criteria)，乃至後續發布的 IUCN 紅皮書名錄地區及國家級評估標準應用指南，亦成為許多國家評估其國境內受脅物種名錄的首要參考依據 (Townsend *et al.* 2007；IUCN 2012a)。藉此標準化的評估方法，不僅有助於各國立法與執法，也讓全球紅皮書評估涵蓋的物種更加完整 (Rodrigues *et al.* 2006)。

如果一個國家或地區稱其國家或區域紅皮書的產生是依據 IUCN 系統，那麼就必須無偏差地根據 IUCN 紅皮書類別及標準 (IUCN Red List Categories and Criteria) 進行評估 (IUCN 2012b)。而所謂區域 (region) 指的是地球範圍內，任何一個可明確界定的空間範圍，如大陸、國家及州省等

圖 1. IUCN 國家或區域紅皮書類別。



(IUCN 2012a)。由全球至區域時，對受脅物種評估而言，自然會產生原生或外來種，繁殖或非繁殖物種，或先前曾經分布，但已局部滅絕的區域現象 (IUCN 2012a)。本報告採用的評估標準與類別係依據 IUCN 紅皮書名錄類別與標準 3.1 版 (IUCN 2012b)。然而，由於空間尺度的關係，當前述標準應用於分布不完全侷限於評估範圍的物種時，評估流程與標準設定的閥值可能並不適當，因此必須有所有調整。IUCN 紅皮書名錄地區及國家級評估標準應用指南提供了調整建議 (IUCN 2012a)。

臺灣 85 種現生陸域哺乳動物在 IUCN 全球物種紅皮書名錄中被評估者有 72 種，其中屬極危 (Critically Endangered, CR) 類別有 1 種，易危 (Vulnerable, VU) 類別有 3 種，接近受脅 (Near-

threatened, NT) 類別有 7 種，資料缺乏 (Data Deficient, DD) 有 6 種，暫無危機 (Least Concern, LC) 有 55 種 (IUCN 2016)。因 IUCN (2016) 的物種受脅風險評估是以全球為尺度、以種為單位，所以 72 種中屬臺灣特有種的 16 種的全球評估即為臺灣區域評估，但其餘 56 種的評估就非侷限於臺灣區域。此 56 種加上未在 IUCN (2016) 紅皮書名錄中的 13 種共 69 種，占全台陸域哺乳動物種類 81%，顯示絕大多數臺灣陸域哺乳動物缺乏區域性紅皮書名錄的評估。因此本報告蒐集臺灣所有野生陸域哺乳動物的分布範圍、族群趨勢、數量與受脅原因等資訊，依據 IUCN 類別與標準評估各陸域哺乳動物的最新受脅狀態。



■ *Pteropus dasymallus formosus*  
臺灣狐蝠 Formosan flying fox  
NCR A2a; B2ab(v); C1; D  
鄭錫奇 / 攝



■ *Prionailurus bengalensis*  
石虎 Leopard cat  
NEN B1b(iii)c(iv); C2b  
劉建男 / 攝

## 2. 評估流程

本報告中臺灣各陸域哺乳動物受脅狀態的評估流程與方法簡述如下：

### 2.1 界定納入評估之分類群

以 Wilson and Reeder (2005) 的世界哺乳動物名錄為基礎，翼手目部分則依鄭等 (2015) 的最新蝙蝠物種名錄及 Kuo et al. (2017) 的新種彩蝠發表，加上 2005 年後臺灣地區新增的鹿野氏鼯鼠 (*Mogera kanoana* Kawada

et al., 2007) 與臺灣小黃鼠狼 (*Mustela nivalis formosana* Lin et al., 2010) 二物種，共有 85 種陸域哺乳動物列入候選評估名單。其次依據 IUCN 紅皮書名錄地區及國家級評估標準應用指南 (IUCN 2012a) 的建議流程，排除不適用 (Not Applicable) 於區域評估的物種 (如表 1 所列)，其餘出現於臺灣國土涵蓋範圍內之陸域哺乳動物均列入正式評估清單，共 80 種進入評估流程。

表 1. 不適用於本報告區域評估之物種

分類群	全球紅皮書類別	不適用區域評估理由
<i>Cynopterus sphinx</i> (Vahl, 1797) 印度犬果蝠	LC	僅在金門島發現一筆紀錄，不確定是否有長期居留族群。
<i>Rousettus leschenaultii</i> (Desmarest, 1820) 棕果蝠	LC	僅在綠島發現一筆紀錄，不確定是否有長期居留族群。
<i>Scotophilus</i> sp. 大高頭蝠	--	僅在金門島發現一筆紀錄，且分類地位未定。
<i>Rattus exulans</i> (Peale, 1848) 緬甸小鼠	LC	Motokawa <i>et al.</i> (2001) 新記錄之外來種，目前僅分布在花蓮縣。
<i>Cervus nippon taiouanus</i> Blyth, 1860 臺灣梅花鹿	LC	原生野外族群已滅絕，現有野生族群為人為畜養個體野放後所繁衍。

## 2.2 資訊蒐集與初步評估

完成評估對象篩選後，依據 IUCN 評估標準 (IUCN 2012b) 製作每一受評估分類群的資料表。資料表各欄位就所需資訊，儘量蒐集既有學術發表、研究報告、資料庫及相關專家意見等，除填列數據同時載明資料來源並進行必要說明。

本報告評估的空間範圍為中華民國實質管轄的陸地領域，包括臺灣本島及周遭島嶼，如澎湖、蘭嶼及綠島，以及鄰近中國大陸的金門和馬祖。

每一受評分類群均依照 IUCN 紅皮書名錄類別與標準使用指南第 12 版進行評估 (IUCN Standards and Petitions Subcommittee 2016)。評估流程係由：A. 族群量下降、B. 分

布範圍、C. 族群量小且下降、D. 族群數量極少且分布侷限，以及 E. 量化分析等五大標準及對應之次要標準 (Sub-criterion) 及資格限制 (Qualifiers) 所構成之決策樹 (logic tree) 進行 (表 2)。某一物種經過評估後，無法符合國家極危 (Nationally Critical, NCR)、國家瀕危 (Nationally Endangered, NEN) 及國家易危 (Nationally Vulnerable, NVU) 的類別，但已很接近或未來可能達到國家易危類別時，則列入國家接近受脅 (Nationally Near-threatened, NNT)。由於 IUCN 紅皮書名錄類別與標準並無明確的接近受脅 (Near Threatened, NT) 標準定義，本報告根據前述原則設定本報告國家接近受脅的標準 (表 2)。



*Mustela nivalis formosana*

臺灣小黃鼠狼 Formosan least weasel

NVU B1ab(iii); D2

艾台霖 / 攝

表 2. IUCN 紅皮書受脅 (極危、瀕危、易危) 及接近受脅類別評估標準簡要內容。修正自 IUCN Standards and Petitions Subcommittee (2016)

物種紅皮書受脅類別判定標準	極危 (CR)	瀕危 (EN)	易危 (VU)	接近受脅 (NT)
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#### A. 族群量下降 (時間區間為 10 年或 3 個世代，以較長者為優先)

A1	≥ 90%	≥ 70%	≥ 50%	≥ 30%
A2, A3 & A4	≥ 80%	≥ 50%	≥ 30%	≥ 20%

A1. 經由以下列舉任何方式所觀察、推估、推測或懷疑物種族群下降已經發生，而造成下降的原因明顯是可逆的且原因已知並且停止：

- (a) 直接觀察。[A3 除外]
- (b) 適合該分類群的物種豐富度指數。
- (c) 分布範圍、占有面積或棲地品質減少或下降。
- (d) 實際或潛在的開發破壞。
- (e) 直接觀察受外來種、雜交種、病原、污染源、競爭者或寄生物之影響。

A2. 經由 A1 所列舉任何方式所觀察、推估、推測或懷疑物種族群降低已經發生，但造成降低的原因仍未停止、不明或不可逆。

A3. 經由 A1 所列舉任何方式所預估、推測或懷疑物種族群未來近期內會降低 (時間最長為 100 年)。

A4. 經由 A1 所列舉任何方式所觀察、推估、推測或懷疑物種族群未來任何一段時間會降低，造成降低的原因仍未停止、不明或不可逆。

物種紅皮書受脅類別判定標準	極危 (CR)	瀕危 (EN)	易危 (VU)	接近受脅 (NT)
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### B. 分布範圍之判定標準 (至少具備 B1 或 B2 其中之一的條件)

B1. 分布範圍 (EOO)	< 100 平方公里	< 5,000 平方公里	< 20,000 平方公里	<20,000 平方公里
B2. 占有面積 (AOO)	< 10 平方公里	< 500 平方公里	< 2,000 平方公里	< 2,000 平方公里

且族群需遭遇以下至少兩種情況 (至少一種狀況適用於 NT 等級)

(a) 嚴重破碎化或居留區數目為右項數值者	= 1	≤ 5	≤ 10	≤ 10
(b) 經由觀察、推估、推測或預估，下列各項情況之一的數值仍持續下降者：(i) 分布範圍；(ii) 占有面積；(iii) 棲地之區域、實際面積或品質；(iv) 生長地點或亞族群之數目；(v) 能繁殖之成熟個體數				
(c) 下列各項情況其中之一的數值呈現劇烈變動時：(i) 分布範圍；(ii) 占有面積；(iii) 生長地點或亞族群之數目；(iv) 能繁殖之成熟個體數				

### C. 族群量小且下降之判定標準

族群內之成熟個體數	< 250	< 2,500	< 10,000	<20,000
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且具備 C1 或 C2 其中之一的條件

C1. 經由觀察、推估或預估物種族群成熟個體數持續下降。(時間至少為未來 100 年)	3 年或下一代下降 25%	5 年或下一代下降 20%	10 年或下一代下降 10%	10 年或下一代下降 10%
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C2. 經由觀察、推估或預估，能繁殖之成熟個體數持續下降，而且其族群結構遭遇下列至少一種情況者：

a(i) 每個亞族群能繁殖之成熟個體數	≤ 50	≤ 250	≤ 1,000	≤ 1,000
a(ii) 成熟個體都生長在一個單獨的小族群內所占比例	90%	95%	100%	100%

(b) 成熟個體呈現劇烈變動

### D. 族群數量極少且分布侷限之判定標準

族群遭遇以下情況：

D. 成熟個體數	< 50	< 250	D1. < 1,000	D1. < 2,500
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與/或遭遇以下情況：

D2. 出現面積受限或位於居留區的物種族群在未來有可能會面臨威脅，使之受脅程度提升至極危或瀕危等級 (此準則只用於評估易危及接近受脅等級)。	NA	NA	D2. 占有面積 < 20km <sup>2</sup> 或分布地點 ≤ 5	D2. 占有面積 < 50km <sup>2</sup> 或分布地點 ≤ 10
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### E. 量化分析

在野外絕種之機率	10 年內或三個世代內在野外絕種之機率超過 50%	20 年內或五個世代內在野外絕種之機率超過 20%	100 年內在野外絕種之機率超過 10%	100 年內在野外絕種之機率超過 5%
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■ *Coelops frithii formosanus*  
臺灣無尾葉鼻蝠 Formosan tailless leaf-nosed bat  
NVU A2a; B1ac(iv); C2a(i); D1  
陳家鴻 / 攝

## 2.3 類別調整

依據資料完成初步評估後，需進一步考慮受評估分類群的區域滅絕機率受到評估範圍外相同分類群其他族群的影響程度 (IUCN 2012a)。但因臺灣地區大多數島嶼的陸域哺乳動物不易跨越海洋遷移進出其他區域，目前也

尚未有證據顯示任何臺灣陸域野生哺乳動物種類在 10 年或 3 代內與臺灣地區以外族群有個體交流情形。除少數可能的例外，絕大多數物種皆在臺灣繁殖並終年居留，所以本報告之物種評估結果皆暫不進行類別調整。

### 3. 臺灣陸域哺乳類評估結果

評估結果有 2 種為國家極度瀕危 (NCR)，3 種為國家瀕危 (NEN)，7 種為國家易危 (NVU)，合計 12 種為國家受脅，另有 5 種屬國家接近受脅 (NNT)。國家受脅與國家接近受脅物種分別占評估之陸域哺乳類 80 種的 15.0% 與 6.3%。另國家滅絕 (Nationally Extinct) 者 1 種 (臺灣雲豹 *Neofelis nebulosa brachyura*，依據 Chiang

et al. 2015)、資料不足 (Data Deficient) 者 4 種。各分類群的學名原則上依據 Wilson and Reeder (2005)，部分近年新發現的物種或亞種則依循命名發表之文獻 (Kawada et al. 2007; Lin et al. 2010; Kuo et al. 2017) 或鄭等 (2015) 的翼手目動物名錄。本報告所有陸域哺乳類評估資料請聯繫通訊作者索取。

#### 3.1 國家極度瀕危 (NCR) 類別陸域哺乳類名錄

分類群	繁殖 (B)/ 非繁殖 (V)	評估標準	全球紅皮書類別	臺灣占全球 數量百分比 (種)
<i>Pteropus dasymallus formosus</i> Sclater, 1873 臺灣狐蝠	B	A2a; B2ab(v); C1; D	NT	<1
<i>Lutra lutra</i> (Linnaeus, 1758) 歐亞水獺	B	C2a(i)b; D	NT	<1

#### 3.2 國家瀕危 (NEN) 類別陸域哺乳類名錄

分類群	繁殖 (B)/ 非繁殖 (V)	評估標準	全球紅皮書類別	臺灣占全球 數量百分比 (種)
<i>Vespertilio sinensis</i> (Peters, 1880) 霜毛蝠	B	A2a; B1ab(v); C1	LC	<1
<i>Ursus thibetanus formosanus</i> Swinhoe, 1864 臺灣黑熊	B	B1ac(iv); C2a(i)	VU	<1
<i>Prionailurus bengalensis</i> (Kerr, 1792) 石虎	B	B1b(iii)c(iv); C2b	LC	<1

### 3.3 國家易危 (NVU) 類別陸域哺乳類名錄

分類群	繁殖 (B)/ 非繁殖 (V)	評估標準	全球紅皮書類別	臺灣占全球 數量百分比 (種)
<i>Coelops frithii formosanus</i> Horikawa, 1928 臺灣無尾葉鼻蝠	B	A2a; B1ac(iv); C2a(i); D1	LC	<1
<i>Myotis formosus flavus</i> Shamel, 1944 金黃鼠耳蝠	B	A2a; B2ab(v)	LC	<1
<i>Chimarrogale himalayica</i> (Gray, 1842) 水獾	B	B1ab(iii)c(iv)	LC	<1
<i>Martes flavigula chrysospila</i> Swinhoe, 1866 黃喉貂	B	B1b(iii)c(iv)	LC	<1
<i>Mustela nivalis formosana</i> Lin, Motokawa & Harada, 2010 臺灣小黃鼠狼	B	B1ab(iii); D2	LC	<1
<i>Viverricula indica taivana</i> Schwarz, 1911 麝香貓	B	B1ab(iii)	LC	<1
<i>Manis pentadactyla pentadactyla</i> Linnaeus, 1758 穿山甲	B	B1b(iii)c(iv)	CR	<5

### 3.4 國家接近受脅 (NNT) 類別陸域哺乳類名錄

分類群	繁殖 (B)/ 非繁殖 (V)	評估標準	全球紅皮書類別	臺灣占全球 數量百分比 (種)
<i>Eothenomys melanogaster</i> (Milne-Edwards, 1871) 黑腹絨鼠	B	B1b(iii)	LC	<5
<i>Microtus kikuchii</i> Kuroda, 1920 高山田鼠	B	B1b(iii)	NT	100
<i>Herpestes urva formosanus</i> Bechthold, 1936 食蟹獾	B	B1b(iii)	LC	<5
<i>Rusa unicolor swinhoii</i> (Sclater, 1862) 臺灣水鹿	B	B1c(iv)	VU	<1
<i>Capricornis swinhoei</i> Gray, 1862 臺灣野山羊	B	B1c(iv)	LC	100

### 3.5 資料缺乏 (DD) 類別陸域哺乳類名錄

分類群	繁殖 (B)/ 非繁殖 (V)	評估標準	全球紅皮書類別	臺灣占全球 數量百分比 (種)
<i>Harpiocephalus harpia</i> (Temminck, 1840) 毛翼管鼻蝠	B	—	LC	<5
<i>Hypsugo pulveratus</i> (Peters, 1871) 灰伏翼	?	—	LC	<1
<i>Myotis soror</i> Ruedi, Csorba, Lin & Chou, 2015 紅棕鼠耳蝠	B	—	NE	100
<i>Chodsigoa sodalis</i> Thomas, 1913 細尾長尾鼯	B	—	DD	100

### 3.6 暫無危機 (LC) 類別陸域哺乳類名錄

分類群	繁殖 (B)/ 非繁殖 (V)	評估標準	全球紅皮書類別	臺灣占全球 數量百分比 (種)
<i>Rhinolophus formosae</i> Sanborn, 1939 臺灣大蹄鼻蝠	B	—	NT	100
<i>Rhinolophus monoceros</i> Anderson, 1905 臺灣小蹄鼻蝠	B	—	LC	100
<i>Hipposideros armiger terasensis</i> Kishida, 1924 臺灣葉鼻蝠	B	—	LC	<5
<i>Arielulus torquatus</i> Csorba and Lee, 1999 黃頸蝠	B	—	LC	100
<i>Barbastella darjelingensis</i> Hodgson, 1855 東方寬耳蝠	B	—	NE	<10
<i>Eptesicus serotinus horikawai</i> Kishida, 1924 堀川氏棕蝠	B	—	LC	<5
<i>Kerivoula furva</i> Kuo et al., 2017 玄彩蝠	B	—	NE	<10
<i>Harpiola isodon</i> Kuo, Fang, Csorba & Lee, 2006 金芒管鼻蝠	B	—	DD	?



### 3.6 暫無危機 (LC) 類別陸域哺乳類名錄 (續)

分類群	繁殖 (B)/ 非繁殖 (V)	評估標準	全球紅皮書類別	臺灣占全球 數量百分比 (種)
<i>Myotis fimbriatus taiwanensis</i> Ärnbäck-Christie-Linde, 1908 臺灣毛腿鼠耳蝠	B	—	LC	<10
<i>Myotis frater</i> Allen, 1923 長尾鼠耳蝠	B	—	DD	<5
<i>Myotis laniger</i> (Peters, 1870) 華南水鼠耳蝠	B	—	LC	<5
<i>Myotis rufoniger</i> (Tomes, 1858) 赤黑鼠耳蝠	—	—	NE	?
<i>Myotis secundus</i> Ruedi, Csorba, Lin & Chou, 2015 長趾鼠耳蝠	B	—	NE	100
<i>Murina bicolor</i> Kuo, Fang, Csorba & Lee, 2009 黃胸管鼻蝠	B	—	NE	100
<i>Murina gracilis</i> Kuo, Fang, Csorba & Lee, 2009 姬管鼻蝠	B	—	NE	100
<i>Murina puta</i> Kishida, 1924 臺灣管鼻蝠	B	—	NT	100
<i>Murina recondita</i> Kuo, Fang, Csorba & Lee, 2009 隱姬管鼻蝠	B	—	NE	100
<i>Pipistrellus abramus</i> (Temminck, 1838) 東亞家蝠	B	—	LC	<5
<i>Pipistrellus montanus</i> 吳建廷, 2007 山家蝠	B	—	NE	?
<i>Pipistrellus taiwanensis</i> 吳建廷, 2007 臺灣家蝠	B	—	NE	?
<i>Plecotus taivanus</i> Yoshiyuki, 1991 臺灣長耳蝠	B	—	NT	100
<i>Nyctalus plancyi velutinus</i> Allen, 1923 絨山蝠	B	—	LC	<5
<i>Scotophilus kuhlii</i> Leach, 1821 高頭蝠	B	—	LC	<5

## 3.6 暫無危機 (LC) 類別陸域哺乳類名錄 (續)

分類群	繁殖 (B)/ 非繁殖 (V)	評估標準	全球紅皮書類別	臺灣占全球 數量百分比 (種)
<i>Submyotodon latirostris</i> (Kishida, 1932) 寬吻鼠耳蝠	B	—	NE	100
<i>Miniopterus fuliginosus</i> Hodgson, 1835 東亞褶翅蝠	B	—	NE	<5
<i>Tadarida insignis</i> Blyth, 1862 東亞游離尾蝠	B	—	DD	<20
<i>Mogera insularis insularis</i> (Swinhoe, 1863) 臺灣鼯鼠	B	—	LC	<10
<i>Mogera kanoana</i> Kawada et al., 2007 鹿野氏鼯鼠	B	—	NE	100
<i>Anourosorex yamashinai</i> Kuroda, 1935 短尾鼯	B	—	LC	100
<i>Crocidura rapax</i> Allen, 1923 長尾麝鼯	B	—	DD	<20
<i>Crocidura shantungensis</i> Miller, 1901 小麝鼯	B	—	LC	<10
<i>Crocidura tanakae</i> Kuroda, 1938 灰麝鼯	B	—	LC	100
<i>Episoriculus fumidus</i> (Thomas, 1913) 臺灣長尾鼯	B	—	LC	100
<i>Suncus murinus</i> (Linnaeus, 1766) 家鼯	B	—	LC	<5
<i>Belomys pearsonii kaleensis</i> (Swinhoe, 1863) 小鼯鼠	B	—	DD	<10
<i>Callosciurus erythraeus</i> <i>thaiwanensis</i> (Bonhote, 1901) 赤腹松鼠	B	—	LC	<5
<i>Dremomys pernyi owstoni</i> (Thomas, 1908) 長吻松鼠	B	—	LC	<10
<i>Petaurista alborufus lena</i> Thomas, 1907 白面鼯鼠	B	—	LC	<10



### 3.6 暫無危機 (LC) 類別陸域哺乳類名錄 (續)

分類群	繁殖 (B)/ 非繁殖 (V)	評估標準	全球紅皮書類別	臺灣占全球 數量百分比 (種)
<i>Petaurista philippensis grandis</i> (Swinhoe, 1863) 大赤鼯鼠	B	—	LC	<5
<i>Tamias maritimus formosanus</i> (Bonhote, 1900) 條紋松鼠	B	—	LC	<5
<i>Apodemus agrarius</i> (Pallas, 1771) 赤背條鼠	B	—	LC	<1
<i>Apodemus semotus</i> Thomas, 1908 臺灣森鼠	B	—	LC	100
<i>Bandicota indica</i> (Bechstein, 1800) 鬼鼠	B	—	LC	<5
<i>Micromys minutus</i> (Pallas, 1771) 巢鼠	B	—	LC	<1
<i>Mus caroli</i> Bonhote, 1902 田鼯鼠	B	—	LC	<5
<i>Mus musculus</i> Linnaeus, 1758 家鼯鼠	B	—	LC	<1
<i>Niviventer coninga</i> (Swinhoe, 1864) 刺鼠	B	—	LC	100
<i>Niviventer culturatus</i> (Thomas, 1917) 高山白腹鼠	B	—	NT	100
<i>Rattus losea</i> (Swinhoe, 1871) 小黃腹鼠	B	—	LC	<5
<i>Rattus norvegicus</i> (Berkenhout, 1769) 溝鼠	B	—	LC	<1
<i>Rattus tanezumi</i> Temminck, 1844 亞洲家鼠	B	—	LC	<5
<i>Melogale moschata subaurantiaca</i> (Swinhoe, 1863) 鼬獾	B	—	LC	<5
<i>Mustela sibirica taivana</i> Thomas, 1913 黃鼠狼	B	—	LC	<1

### 3.6 暫無危機 (LC) 類別陸域哺乳類名錄 (續)

分類群	繁殖 (B)/ 非繁殖 (V)	評估標準	全球紅皮書類別	臺灣占全球 數量百分比 (種)
<i>Paguma larvata taivana</i> Swinhoe, 1863 白鼻心	B	—	LC	<5
<i>Muntiacus reevesi micrurus</i> (Sclater, 1875) 山羌	B	—	LC	<5
<i>Sus scrofa taivanus</i> (Swinhoe, 1863) 臺灣野豬	B	—	LC	<1
<i>Macaca cyclopis</i> (Swinhoe, 1863) 臺灣獼猴	B	—	LC	100
<i>Lepus sinensis formosus</i> Thomas, 1908 臺灣野兔	B	—	LC	<5

## 4. 臺灣之全球受脅陸域哺乳類物種

本報告納入評估候選之 80 種陸域哺乳類中，有 4 種名列 IUCN (2016) 紅皮書全球受威脅哺乳類，其中 2 種屬臺灣受威脅物種 (包含 EN 與 VU 等級)，1 種屬臺灣接近受脅 (NT)，1 種則被認為在臺灣已區域滅絕 (RE)。

分類群	繁殖 (B)/ 非繁殖 (V)	國家紅皮書類別	全球紅皮書類別	臺灣占全球數量百 分比 (種)
<i>Ursus thibetanus formosanus</i> Swinhoe, 1864 臺灣黑熊	B	EN	VU	<1
<i>Neofelis nebulosa brachyura</i> (Swinhoe, 1863) 臺灣雲豹	B	RE	VU	0
<i>Rusa unicolor swinhoii</i> (Sclater, 1862) 臺灣水鹿	B	NT	VU	<1
<i>Manis pentadactyla pentadactyla</i> Linnaeus, 1758 穿山甲	B	VU	CR	<5



## 5. 謝誌

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# The Red List of Terrestrial Mammals of Taiwan, 2017

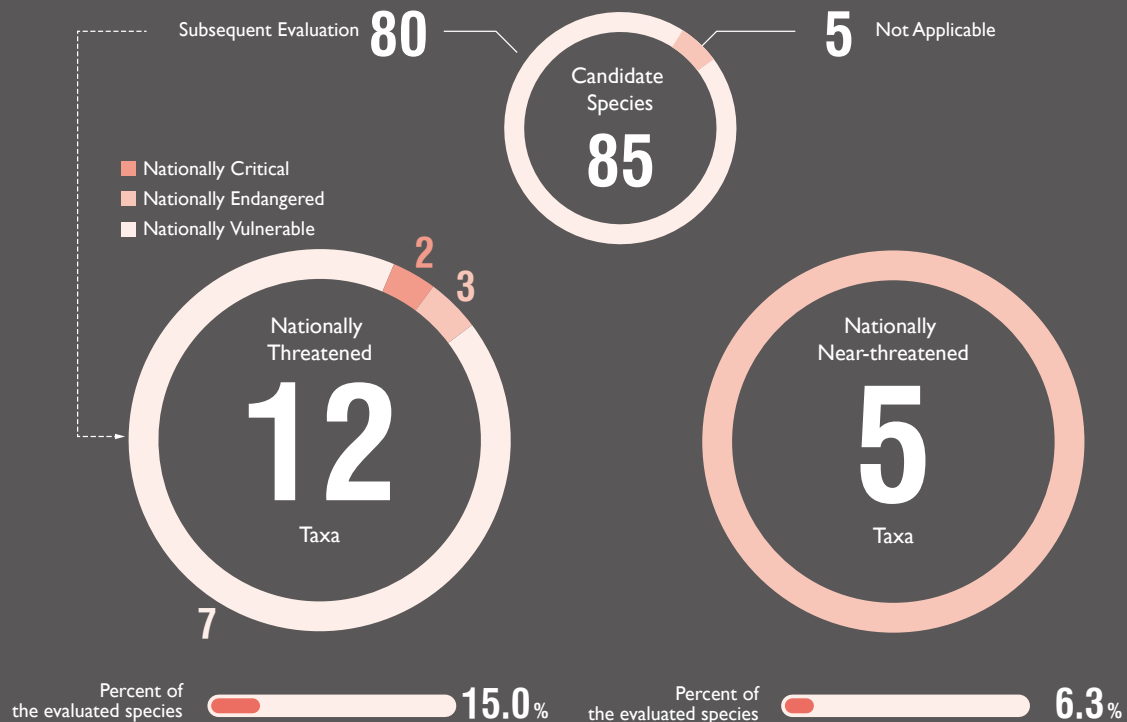
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## Abstract

In this report, all wild terrestrial mammals in Taiwan were assessed in accordance with the categories and criteria recommended by the International Union for Conservation of Nature to compile a national red list of threatened species. A total of 85 terrestrial mammals were included in the candidate assessment list, five of which were determined to be not applicable to regional assessment, and the remaining 80 species underwent evaluation. The results indicated that in Taiwan, 12 terrestrial mammals are nationally threatened, of which two (i.e., *Pteropus dasymallus formosus* and *Lutra lutra*) are nationally critical, three (i.e., *Vespertilio sinensis*, *Ursus thibetanus formosanus* and *Prionailurus bengalensis*) are nationally endangered, and seven (i.e., *Coelops frithii formosanus*, *Myotis formosus flavus*, *Chimarrogale himalayica*, *Martes flavigula chrysoaspila*, *Mustela nivalis formosana*, *Viverricula indica taivana*, and *Manis pentadactyla pentadactyla*) are nationally vulnerable. Additionally, five species (i.e., *Eothenomys melanogaster*, *Microtus kikuchii*, *Herpestes urva formosanus*, *Rusa unicolor swinhoii*, and *Capricornis swinhoei*) are nationally near-threatened. Nationally threatened and near-threatened terrestrial mammal species account for 15.0% and 6.3% the total assessed species, respectively. Four globally threatened terrestrial mammals were found in Taiwan, of which two (i.e., *Ursus thibetanus formosanus* and *Manis pentadactyla pentadactyla*) are nationally threatened, one (i.e., *Rusa unicolor swinhoii*) is nationally near-threatened, and one (i.e., *Neofelis nebulosa brachyura*) is nationally extinct.





# 1. Introduction

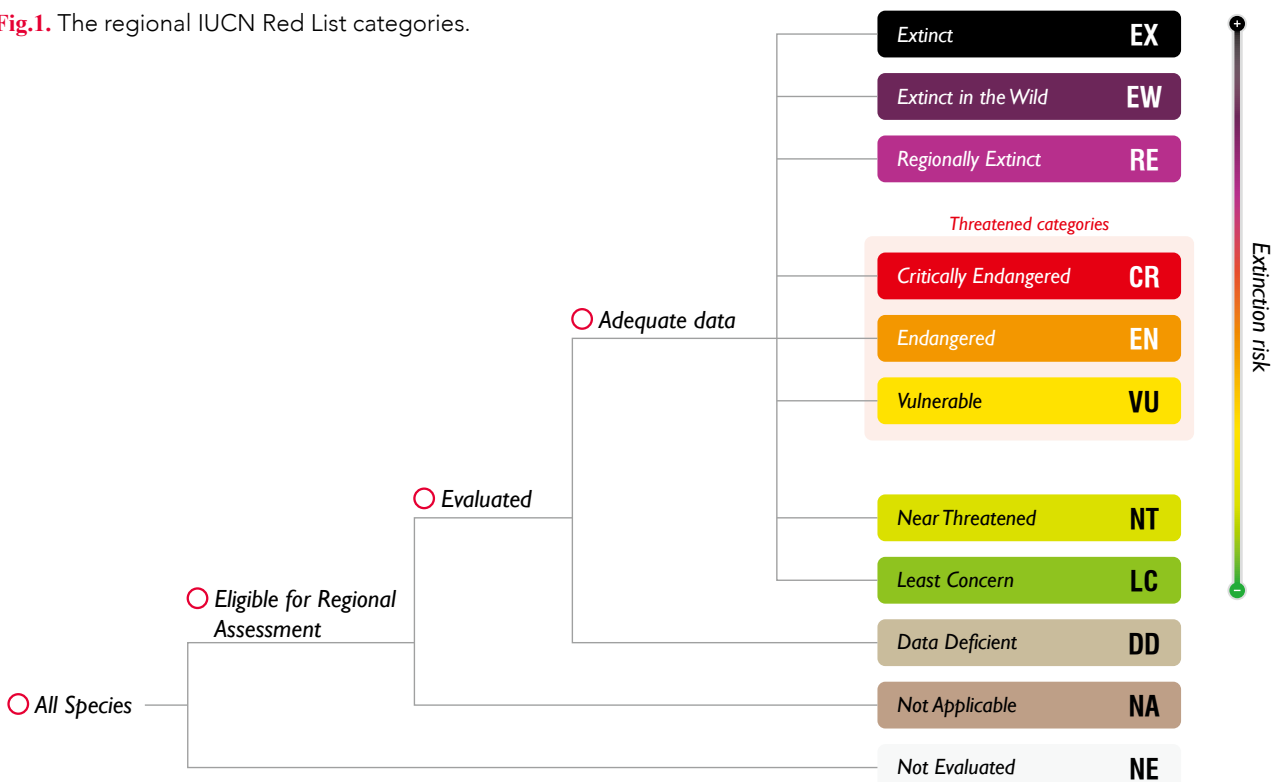
The risk of species or taxon extinction is critical in conservation management. Compiling a list of species by threat level is a key step in prioritizing rehabilitation projects, research, monitoring, and other conservation measures. Moreover, the list can also serve as a primary tool for obtaining social supporting in habitat protection as well as supporting decision-making for resource deployment (Townsend *et al.* 2007).

Since it was first published in 1964, the International Union for Conservation of Nature (IUCN) Red List of Threatened Species, which was compiled by the IUCN Species Survival Commission, has become the principal reference for assessing trends in the conservation status of species worldwide (Rodrigues *et al.* 2006; IUCN 2016). Its categories of conservation status (Fig. 1), assessment criteria, and the later published Guidelines for Application of IUCN

Red List Criteria at Regional and National Levels have also become key references for numerous countries in evaluating and listing their nationally threatened species (Townsend *et al.* 2007; IUCN 2012a). This standardized assessment method facilitated legislation and law implementation in numerous countries and further improved the comprehensiveness of the global red list of threatened species (Rodrigues *et al.* 2006).

If a country or region claims that its red list was generated in accordance with the IUCN system, the assessment must be conducted unbiasedly according to the IUCN Red List Categories and Criteria (IUCN 2012b). A region refers to any spatial scope on Earth that can be clearly defined, such as a continent, country, state, or province (IUCN 2012a). When the scope of threatened taxa assessment is reduced from the global to a regional level, distinctions between indigenous

Fig.1. The regional IUCN Red List categories.





**|** *Myotis formosus flavus*  
 金黃鼠耳蝠 Hodgson's myotis  
 NVU A2a; B2ab(v)  
 鄭錫奇 / 攝

and introduced species and between breeding and nonbreeding species naturally emerge. Moreover, regional phenomena in which previously native species have become extinct may also be identified (IUCN 2012a). This study adopted the IUCN Red List Categories and Criteria V. 3.1 as the assessment categories and criteria (IUCN 2012b). However, because of discrepancies in spatial scale, if the aforementioned standard criteria are applied to evaluate species that occupy an area exceeding the evaluated scope, the thresholds set in the assessment process and criteria may be inappropriate. Therefore, corresponding adjustments must be made. The Guidelines for Application of IUCN Red List Criteria at Regional and National Levels provide suggestions on the adjustments (IUCN 2012a).

Of the existing 85 terrestrial mammals in Taiwan, 72 were evaluated in the IUCN Global Red List of Threatened Species (IUCN 2016). One

species was classified as critically endangered (CR), three as vulnerable (VU), seven as near-threatened (NT), six as data deficient (DD), and 55 as least concern (LC). IUCN (2016) performed the risk assessment of species under threat on a global scale, with species as a unit. Therefore, of the 72 species, the global assessment of 16 endemic species is identical to the regional assessment of Taiwan; however, the assessment of the remaining 56 species is not limited to the Taiwan region. Adding the 56 species to the 13 species not included on the IUCN Red List (2016) yielded 69 species, which account for 81% of Taiwan's terrestrial mammals, showing that for most terrestrial mammals in Taiwan, regional Red List-based assessment remains lacking. Therefore, this study collected various data, including the distribution, population trends, number, and causes of threats of all wild terrestrial mammals in Taiwan, to assess their current threat status.



## 2. Assessment process

The following section summarizes the process and method adopted to assess the threatened statuses of all terrestrial mammals in Taiwan:

### 2.1 Defining the taxa to be included in the evaluation

The candidate assessment list of terrestrial mammals was compiled on the basis of the Mammal Species of the World (Wilson and Reeder 2005). Additionally, the part on the order Chiroptera was generated according to the latest version of the bat species list (Cheng *et al.* 2015) and the new species of *Kerivoula* recently identified by Kuo *et al.* (2017). Two newly described mammal species in Taiwan, namely *Mogera kanoana* (Kawada *et al.* 2007) and *Mustela nivalis formosana* (Lin *et al.* 2010), were also added to the list, resulting in a

candidate list of 85 terrestrial mammal species to be assessed. According to the recommended process in the Guidelines for Application of IUCN Red List Criteria at Regional and National Levels (IUCN 2012a), species that were deemed Not Applicable in regional assessment (Table 1) were excluded. All remaining terrestrial mammals that appeared within Taiwan's territory were included in the official assessment list. A total of 80 species underwent the assessment process.

**Table 1.** Not Applicable species in this report

Taxon	Global Red List Category	Reason(s) for inapplicability in regional assessment
<i>Cynopterus sphinx</i> (Vahl, 1797) Short-nosed fruit bat	LC	Only one record of appearance was documented on Kinmen Island. Uncertain whether a long-term resident population exists.
<i>Rousettus leschenaultii</i> (Desmarest, 1820) Fulvous fruit bat	LC	Only one record of appearance was documented on Green Island. Uncertain whether a long-term residence population exists.
<i>Scotophilus</i> sp. Greater chestnut bat	--	Only one record of appearance was documented on Kinmen Island. Its taxonomic status remains undetermined.
<i>Rattus exulans</i> (Peale, 1848) Pacific rat	LC	Newly exotic species recorded by Motokawa <i>et al.</i> (2001). Only recorded in Hualien County to date.
<i>Cervus nippon taiouanus</i> Blyth, 1860 Formosan sika	LC	The original population in the wild has gone extinct. The existing wild population is descended from artificially bred individuals that were released into the wild.

## 2.2 Data collection and preliminary evaluation

After the subjects of evaluation were identified, an information table of each assessed taxon was prepared in accordance with the IUCN Red List Categories and Criteria (IUCN 2012b). All columns in the table were filled with information to incorporate as much data as possible from published studies, research reports, databases as well as expert opinions. In addition to the statistics, data sources were specified and explained if necessary.

The spatial scope evaluated in this report was the terrestrial area where the Republic of China exerts substantial dominance, namely Taiwan Island and its outlying islands and island groups such as Penghu, Orchid Island, Green Island, Kinmen, and Matsu; the latter two islet groups are geographically proximate to China.

Each assessed taxon was evaluated in accordance with the Guidelines for Using the

IUCN Red List Categories and Criteria (V. 12, IUCN Standards and Petitions Subcommittee 2016). The assessment process was conducted according to a logic tree comprising five criteria and their sub-criteria and qualifiers (Table 2), which are (A) Population size reduction; (B) Geographic range size, and fragmentation, decline or fluctuations; (C) Small population size and decline; (D) Very small or restricted population; and (E) Quantitative analysis of extinction risk. Species that did not meet the criteria for nationally critical (NCR), nationally endangered (NEN), or nationally vulnerable (NVU) categories after assessment, but were found close to or showing the potential to reach the NVU category were categorized as nationally near-threatened (NNT). Because the IUCN Red List Categories and Criteria did not provide a specific definition for the near-threatened category, this report set the criteria for NNT with reference to the preceding principle (Table 2).

**Table 2.** A simplified overview of Red List criteria adopted in this study. Modified from IUCN Standards and Petitions Subcommittee (2016)

Use any of the criteria A-E	Critically Endangered	Endangered	Vulnerable	Near Threatened
<b>A. Population size reduction (declines measured over the longer of 10 years or 3 generations)</b>				
A1	≥ 90%	≥ 70%	≥ 50%	≥ 30%
A2, A3 & A4	≥ 80%	≥ 50%	≥ 30%	≥ 20%

A1. Population reduction observed, estimated, inferred, or suspected in the past where the causes of the reduction are clearly reversible AND understood AND have ceased, based on and specifying any of the following:

- (a) direct observation. [except A3]
- (b) an index of abundance appropriate to the taxon.
- (c) a decline in area of occupancy (AOO), extent of occurrence (EOO) and/or habitat quality.
- (d) actual or potential levels of exploitation.
- (e) effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.

A2. Population reduction observed, estimated, inferred, or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.

A3. Population reduction projected, inferred or suspected to be met in the future (up to a maximum of 100 years) [(a) cannot be used for A3]

A4. An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.



Use any of the criteria A-E	Critically Endangered	Endangered	Vulnerable	Near Threatened
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### B. Geographic range in the form of either B1 (extent of occurrence) AND/OR B2 (area of occupancy)

B1. Extent of occurrence (EOO)	< 100 km <sup>2</sup>	< 5,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>
B2. Area of occupancy (AOO)	< 10 km <sup>2</sup>	< 500 km <sup>2</sup>	< 2,000 km <sup>2</sup>	< 2,000 km <sup>2</sup>

AND at least 2 of the following 3 conditions (at least one for Near-threatened category):

(a) Severely fragmented OR # locations	= 1	≤ 5	≤ 10	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals				
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals				

### C. Small population size and decline

Number of mature individuals	< 250	< 2,500	< 10,000	< 20,000
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AND at least one of C1 or C2

C1. An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation	20% in 5 years or 2 generations	10% in 10 years or 3 generations	10% in 10 years or 3 generations
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C2. An observed, estimated, projected or inferred continuing decline AND at least one of the following 3 conditions:

a(i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1000	≤ 1000
a(ii) % of mature individuals in one subpopulation =	90%	95%	100%	100%

(b) Extreme fluctuations in the number of mature individuals

### D. Very small or restricted population Either:

D. Number of mature individuals	< 50	< 250	D1. < 1000	D1. < 2500
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AND/OR

D2. Only applies to the VU and NT category Restricted area of occupancy or number of locations with a plausible future threat that could drive the taxon to CR or EX in a very short time.	NA	NA	D2. AOO < 20 km <sup>2</sup> or number of locations ≤ 5	D2. AOO < 50 km <sup>2</sup> or number of locations ≤ 10
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### E. Quantitative Analysis

Indicating the probability of extinction in the wild to be:	≥ 50% in 10 years or 3 generations (100 year max.)	≥ 20% in 20 years or 5 generations (100 year max.)	≥ 10% in 100 years	≥ 5% in 100 years
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**|** *Ursus thibetanus formosanus*  
臺灣黑熊 Formosan black bear  
NEN B1ac(iv); C2a(i)  
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### 2.3 Category adjustment

After the preliminary assessment is completed according to the integrated information, the effect of other populations of the same taxon residing outside of the evaluated area on the regional extinction probability of an assessed taxon should be considered (IUCN 2012a). However, most terrestrial mammals on most islands of the Taiwan region cannot easily cross seas or oceans to migrate. No evidence has shown that any of

Taiwan's terrestrial wild mammal species have had contact with individuals from populations outside of Taiwan within 10 years or three generations. Apart from certain possible exceptions, most species reproduce and reside in Taiwan perennially. Therefore, no category adjustment for the species evaluation results of the present report was conducted.



### 3. Assessment results of terrestrial mammal species of Taiwan

The assessment results revealed that two species were categorized as nationally critical (NCR), three as nationally endangered (NEN), and seven as nationally vulnerable (NVU) for a total of 12 nationally threatened species. Moreover, five species were determined to be nationally near-threatened (NNT). Nationally threatened and nationally near-threatened species accounted for 15.0% and 6.3% of the 80 assessed species of terrestrial mammals, respectively. Additionally, one species was considered to be nationally extinct (the Formosan clouded leopard *Neofelis nebulosa*

*brachyura*) (Chiang *et al.* 2015); and four species were deemed data deficient (DD). The scientific names of taxa basically follow those provided by Wilson and Reeder (2005); those of some recently described species or subspecies either follow the names used in the studies in which they were first published (Kawada *et al.* 2007; Lin *et al.* 2010; Kuo *et al.* 2017) or in the bat species list (Cheng *et al.* 2015). The assessment data of all terrestrial mammals in this report can be accessed by contacting the corresponding author.

#### 3.1 List of Nationally Critical terrestrial mammal taxa in Taiwan

Taxon	Breeder/Visitor	Criteria	Global Red List Category	Proportion (%) of Global population (species)
<i>Pteropus dasymallus formosus</i> Sclater, 1873 Formosan flying fox	B	A2a; B2ab(v); C1; D	NT	<1
<i>Lutra lutra</i> (Linnaeus, 1758) European otter	B	C2a(i)b; D	NT	<1

#### 3.2 List of Nationally Endangered terrestrial mammal taxa in Taiwan

Taxon	Breeder/Visitor	Criteria	Global Red List Category	Proportion (%) of Global population (species)
<i>Vespertilio sinensis</i> (Peters, 1880) Asian particolored bat	B	A2a; B1ab(v); C1	LC	<1
<i>Ursus thibetanus formosanus</i> Swinhoe, 1864 Formosan black bear	B	B1ac(iv); C2a(i)	VU	<1
<i>Prionailurus bengalensis</i> (Kerr, 1792) Leopard cat	B	B1b(iii)c(iv); C2b	LC	<1

### 3.3 List of Nationally Vulnerable terrestrial mammal taxa in Taiwan

Taxon	Breeder/Visitor	Criteria	Global Red List Category	Proportion (%) of Global population (species)
<i>Coelops frithii formosanus</i> Horikawa, 1928 Formosan tailless leaf-nosed bat	B	A2a; B1ac(iv); C2a(i); D1	LC	<1
<i>Myotis formosus flavus</i> Shamel, 1944 Hodgson's myotis	B	A2a; B2ab(v)	LC	<1
<i>Chimarrogale himalayica</i> (Gray, 1842) Himalayan water shrew	B	B1ab(iii)c(iv)	LC	<1
<i>Martes flavigula chrysospila</i> Swinhoe, 1866 Formosan yellow-throated marten	B	B1b(iii)c(iv)	LC	<1
<i>Mustela nivalis formosana</i> Lin, Motokawa & Harada, 2010 Formosan least weasel	B	B1ab(iii); D2	LC	<1
<i>Viverricula indica taivana</i> Schwarz, 1911 Formosan small Indian civet	B	B1ab(iii)	LC	<1
<i>Manis pentadactyla pentadactyla</i> Linnaeus, 1758 Formosan pangolin	B	B1b(iii)c(iv)	CR	<5

### 3.4 List of Nationally Near-threatened terrestrial mammal taxa in Taiwan

Taxon	Breeder/Visitor	Criteria	Global Red List Category	Proportion (%) of Global population (species)
<i>Eothenomys melanogaster</i> (Milne-Edwards, 1871) Pere David's red-backed vole	B	B1b(iii)	LC	<5
<i>Microtus kikuchii</i> Kuroda, 1920 Taiwan vole	B	B1b(iii)	NT	100
<i>Herpestes urva formosanus</i> Bechthold, 1936 Formosan crab-eating mongoose	B	B1b(iii)	LC	<5
<i>Rusa unicolor swinhoii</i> (Sclater, 1862) Formosan sambar	B	B1c(iv)	VU	<1
<i>Capricornis swinhoei</i> Gray, 1862 Formosan serow	B	B1c(iv)	LC	100



### 3.5 The terrestrial mammals in category of Data Deficient in Taiwan

Taxon	Breeder/Visitor	Criteria	Global Red List Category	Proportion (%) of Global population (species)
<i>Harpiocephalus harpia</i> (Temminck, 1840) Lesser hairy-winged bat	B	—	LC	<5
<i>Hypsugo pulveratus</i> (Peters, 1871) Chinese pipistrelle	?	—	LC	<1
<i>Myotis soror</i> Ruedi, Csorba, Lin & Chou, 2015 Reddish whiskered bat	B	—	NE	100
<i>Chodsigoa sodalis</i> Thomas, 1913 Lesser Taiwanese shrew	B	—	DD	100

### 3.6 The terrestrial mammals in category of Least Concern in Taiwan

Taxon	Breeder/Visitor	Criteria	Global Red List Category	Proportion (%) of Global population (species)
<i>Rhinolophus formosae</i> Sanborn, 1939 Formosan greater horseshoe bat	B	—	NT	100
<i>Rhinolophus monoceros</i> Anderson, 1905 Formosan lesser horseshoe bat	B	—	LC	100
<i>Hipposideros armiger terasensis</i> Kishida, 1924 Formosan leaf-nosed bat	B	—	LC	<5
<i>Arielulus torquatus</i> Csorba and Lee, 1999 Yellow-necked sprite	B	—	LC	100
<i>Barbastella darjelingensis</i> Hodgson, 1855 Eastern barbastelle	B	—	NE	<10
<i>Eptesicus serotinus horikawai</i> Kishida, 1924 Horikawa's brown bat	B	—	LC	<5
<i>Kerivoula furva</i> Kuo et al., 2017 Dark woolly bat	B	—	NE	<10
<i>Harpiola isodon</i> Kuo, Fang, Csorba & Lee, 2006 Golden-tipped tube-nosed bat	B	—	DD	?

### 3.6 The terrestrial mammals in category of Least Concern in Taiwan (cont.)

<b>Taxon</b>	<b>Breeder/Visitor</b>	<b>Criteria</b>	<b>Global Red List Category</b>	<b>Proportion (%) of Global population (species)</b>
<i>Myotis fimbriatus taiwanensis</i> Ärnback-Christie-Linde, 1908 <b>Taiwan hairy-legged myotis</b>	B	—	LC	<10
<i>Myotis frater</i> Allen, 1923 <b>Long-tailed whiskered bat</b>	B	—	DD	<5
<i>Myotis laniger</i> (Peters, 1870) <b>Chinese water myotis</b>	B	—	LC	<5
<i>Myotis rufoniger</i> (Tomes, 1858) <b>Red and black myotis</b>	B	—	NE	?
<i>Myotis secundus</i> Ruedi, Csorba, Lin & Chou, 2015 <b>Taiwan long-toed myotis</b>	B	—	NE	100
<i>Murina bicolor</i> Kuo, Fang, Csorba & Lee, 2009 <b>Yellow-chested tube-nosed bat</b>	B	—	NE	100
<i>Murina gracilis</i> Kuo, Fang, Csorba & Lee, 2009 <b>Taiwan little tube-nosed bat</b>	B	—	NE	100
<i>Murina puta</i> Kishida, 1924 <b>Taiwan tube-nosed bat</b>	B	—	NT	100
<i>Murina recondita</i> Kuo, Fang, Csorba & Lee, 2009 <b>Faint-golden little tube-nosed bat</b>	B	—	NE	100
<i>Pipistrellus abramus</i> (Temminck, 1838) <b>Japanese pipistrelle</b>	B	—	LC	<5
<i>Pipistrellus montanus</i> Wu, 2007 <b>Mountain pipistrelle</b>	B	—	NE	?
<i>Pipistrellus taiwanensis</i> Wu, 2007 <b>Taiwanese pipistrelle</b>	B	—	NE	?
<i>Plecotus taivanus</i> Yoshiyuki, 1991 <b>Taiwan long-eared bat</b>	B	—	NT	100



### 3.6 The terrestrial mammals in category of Least Concern in Taiwan (cont.)

Taxon	Breeder/Visitor	Criteria	Global Red List Category	Proportion (%) of Global population (species)
<i>Nyctalus plancyi velutinus</i> Allen, 1923 <b>Chinese noctule</b>	B	—	LC	<5
<i>Scotophilus kuhlii</i> Leach, 1821 <b>Chestnut bat</b>	B	—	LC	<5
<i>Submyotodon latirostris</i> (Kishida, 1932) <b>Taiwan broad-muzzled mouse-eared bat</b>	B	—	NE	100
<i>Miniopterus fuliginosus</i> Hodgson, 1835 <b>Eastern bent-winged bat</b>	B	—	NE	<5
<i>Tadarida insignis</i> Blyth, 1862 <b>Oriental free-tailed bat</b>	B	—	DD	<20
<i>Mogera insularis insularis</i> (Swinhoe, 1863) <b>Formosan mole</b>	B	—	LC	<10
<i>Mogera kanoana</i> Kawada et al., 2007 <b>Kano's mole</b>	B	—	NE	100
<i>Anourosorex yamashinai</i> Kuroda, 1935 <b>Formosan mole-shrew</b>	B	—	LC	100
<i>Crocidura rapax</i> Allen, 1923 <b>Long-tailed white-toothed shrew</b>	B	—	DD	<20
<i>Crocidura shantungensis</i> Miller, 1901 <b>Asian lesser white-toothed shrew</b>	B	—	LC	<10
<i>Crocidura tanakae</i> Kuroda, 1938 <b>Taiwanese grey shrew</b>	B	—	LC	100
<i>Episoriculus fumidus</i> (Thomas, 1913) <b>Taiwan long-tailed shrew</b>	B	—	LC	100
<i>Suncus murinus</i> (Linnaeus, 1766) <b>Asian house shrew</b>	B	—	LC	<5

### 3.6 The terrestrial mammals in category of Least Concern in Taiwan (cont.)

<b>Taxon</b>	<b>Breeder/Visitor</b>	<b>Criteria</b>	<b>Global Red List Category</b>	<b>Proportion (%) of Global population (species)</b>
<i>Belomys pearsonii kaleensis</i> (Swinhoe, 1863) <b>Formosan hairy-eared flying squirrel</b>	B	—	DD	<10
<i>Callosciurus erythraeus thaiwanensis</i> (Bonhote, 1901) <b>Formosan red-bellied squirrel</b>	B	—	LC	<5
<i>Dremomys pernyi owstoni</i> (Thomas, 1908) <b>Formosan long-nosed squirrel</b>	B	—	LC	<10
<i>Petaurista alborufus lena</i> Thomas, 1907 <b>Formosan white-faced flying squirrel</b>	B	—	LC	<10
<i>Petaurista philippensis grandis</i> (Swinhoe, 1863) <b>Formosan giant flying squirrel</b>	B	—	LC	<5
<i>Tamiops maritimus formosanus</i> (Bonhote, 1900) <b>Formosan striped squirrel</b>	B	—	LC	<5
<i>Apodemus agrarius</i> (Pallas, 1771) <b>Striped field mouse</b>	B	—	LC	<1
<i>Apodemus semotus</i> Thomas, 1908 <b>Taiwan field mouse</b>	B	—	LC	100
<i>Bandicota indica</i> (Bechstein, 1800) <b>Greater bandicoot rat</b>	B	—	LC	<5
<i>Micromys minutus</i> (Pallas, 1771) <b>Harvest mouse</b>	B	—	LC	<1
<i>Mus caroli</i> Bonhote, 1902 <b>Ryukyu mouse</b>	B	—	LC	<5
<i>Mus musculus</i> Linnaeus, 1758 <b>House mouse</b>	B	—	LC	<1



### 3.6 The terrestrial mammals in category of Least Concern in Taiwan (cont.)

<b>Taxon</b>	<b>Breeder/Visitor</b>	<b>Criteria</b>	<b>Global Red List Category</b>	<b>Proportion (%) of Global population (species)</b>
<i>Niviventer coninga</i> (Swinhoe, 1864) <b>Taiwan spiny niviventer</b>	B	—	LC	100
<i>Niviventer culturatus</i> (Thomas, 1917) <b>Taiwan soft-furred niviventer</b>	B	—	NT	100
<i>Rattus losea</i> (Swinhoe, 1871) <b>Losea rat</b>	B	—	LC	<5
<i>Rattus norvegicus</i> (Berkenhout, 1769) <b>Brown rat</b>	B	—	LC	<1
<i>Rattus tanezumi</i> Temminck, 1844 <b>Oriental house rat</b>	B	—	LC	<5
<i>Melogale moschata subaurantiaca</i> (Swinhoe, 1863) <b>Formosan ferret-badger</b>	B	—	LC	<5
<i>Mustela sibirica taivana</i> Thomas, 1913 <b>Formosan weasel</b>	B	—	LC	<1
<i>Paguma larvata taivana</i> Swinhoe, 1863 <b>Formosan masked palm civet</b>	B	—	LC	<5
<i>Muntiacus reevesi micrurus</i> (Sclater, 1875) <b>Formosan Reeve's muntjac</b>	B	—	LC	<5
<i>Sus scrofa taivanus</i> (Swinhoe, 1863) <b>Formosan wild boar</b>	B	—	LC	<1
<i>Macaca cyclopis</i> (Swinhoe, 1863) <b>Formosan macaque</b>	B	—	LC	100
<i>Lepus sinensis formosus</i> Thomas, 1908 <b>Formosan hare</b>	B	—	LC	<5

## 4. Globally Threatened terrestrial mammal species of Taiwan

Of the 80 terrestrial mammals assessed in this report, four are categorized as globally threatened by IUCN (2016). Of them, two were nationally threatened species (including EN and VU), one was nationally near-threatened (NT), and one was considered regionally extinct (RE) in Taiwan.

Taxon	Breeder/Visitor	National Red List Category	Global Red List Category	Proportion (%) of Global population (species)
<i>Ursus thibetanus formosanus</i> Swinhoe, 1864 Formosan black bear	B	EN	VU	<1
<i>Neofelis nebulosa brachyura</i> (Swinhoe, 1863) Formosan clouded leopard	B	RE	VU	0
<i>Rusa unicolor swinhoii</i> (Sclater, 1862) Formosan sambar	B	NT	VU	<1
<i>Manis pentadactyla pentadactyla</i> Linnaeus, 1758 Formosan pangolin	B	VU	CR	<5

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**Lutra lutra**  
歐亞水獺 European otter  
NCR C2a(i)b; D  
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## The Red List of Terrestrial Mammals of Taiwan, 2017

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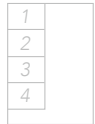
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### 封底照片 /



- 1 | *Coelops frithii formosanus*  
臺灣無尾葉鼻蝠 Formosan tailless leaf-nosed bat  
NVU A2a; B1ac(iv); C2a(i); D1  
周政翰 / 攝
- 2 | *Prionailurus bengalensis*  
石虎 Leopard cat  
NEN B1b(iii)c(iv); C2b  
劉建男 / 攝
- 3 | *Mustela nivalis formosana*  
臺灣小黃鼠狼 Formosan least weasel  
NVU B1ab(iii); D2  
周政翰 / 攝
- 4 | *Vespertilio sinensis*  
霜毛蝠 Asian particolored bat  
NEN A2a; B1ab(v); C1  
周政翰 / 攝

