

Woody and non woody landcover change on rural regulated land

Summary report 2020



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Introduction

This report provides a summary of detected woody and non woody native vegetation loss that has occurred on rural regulated land across NSW since 25 August 2017 under the *Local Land Services Act 2013* (LLS Act). Woody vegetation includes forests and woodlands, and non woody native vegetation includes grasses, small shrubs, herbs and ground cover.

Economic and environmental conditions can influence vegetation loss. In 2020 NSW was impacted by extreme bushfire events on the back of a prolonged drought, followed up by significant rain events. This reporting period also coincides with the COVID-19 pandemic.

Management of native vegetation is determined by land categorisation. Regulated land is classified as 'category 2-regulated land' under Part 5A of the LLS Act and includes category 2-sensitive and category 2-vulnerable land. Land categories set out the pathways available for landholders of regulated land to obtain authorisation to clear and manage native vegetation.

On category 2 land, landholders can undertake allowable activities, such as routine land management activities. Category 2 land is divided into:

- regulated land all parts of the Land Management (Native Vegetation) Code 2018 (the Land Management Code) are available and all allowable activities are permitted
- vulnerable regulated land some parts of the Land Management Code are not permitted, some allowable activities are not permitted or have reduced limits. Clearing of dead and non-native plants is to be regulated in the same way as native vegetation
- sensitive regulated land use of the Land Management Code is not permitted; however, an application can be made to the Native Vegetation Panel to consider the social, economic and environmental aspects of the application. Allowable activities are reduced in the same way as vulnerable regulated land.

Appendix A details the different criteria set out in the LLS Act and Local Land Services Regulation 2014 that determine whether land is classified as category 2 land.

Detailed information about detected loss of vegetation from 25 August 2017, 2018, 2019 and 2020 is available in the 'Results for landcover change on rural regulated land in NSW 2020' Excel spreadsheet.



How landcover change is detected

This landcover change report combines data from the Statewide Landcover and Tree Study (SLATS) with non woody vegetation change data captured on rural regulated land.

The SLATS method detects woody vegetation change through a combination of automated and manual interpretation of differences between Sentinel-2 satellite images captured during summer each year. This analysis is done across the state and made available as the Woody vegetation change, Statewide Landcover and Tree Study: Summary report 2020. Image interpreters validate the change and assign a replacement landcover class that is indicative of the intended purpose for the change. More detailed information is available on the SLATS webpage.

The broad landcover classes for woody and non woody vegetation loss are agriculture, forestry and infrastructure activities. In some cases, more detailed landcover classes are assigned using information obtained from satellite imagery and ancillary data. For example, clearing for infrastructure may be specified as clearing for farm infrastructure or firefighting; however, these detailed classes are rolled up into the broad classes for reporting.

Non woody vegetation loss, or removal of grasses, small shrubs and ground cover, is identified using satellite-derived products that are referenced against high-resolution imagery. Expert interpreters use supporting data to validate change and assign landcover classes, as is done for woody vegetation change.

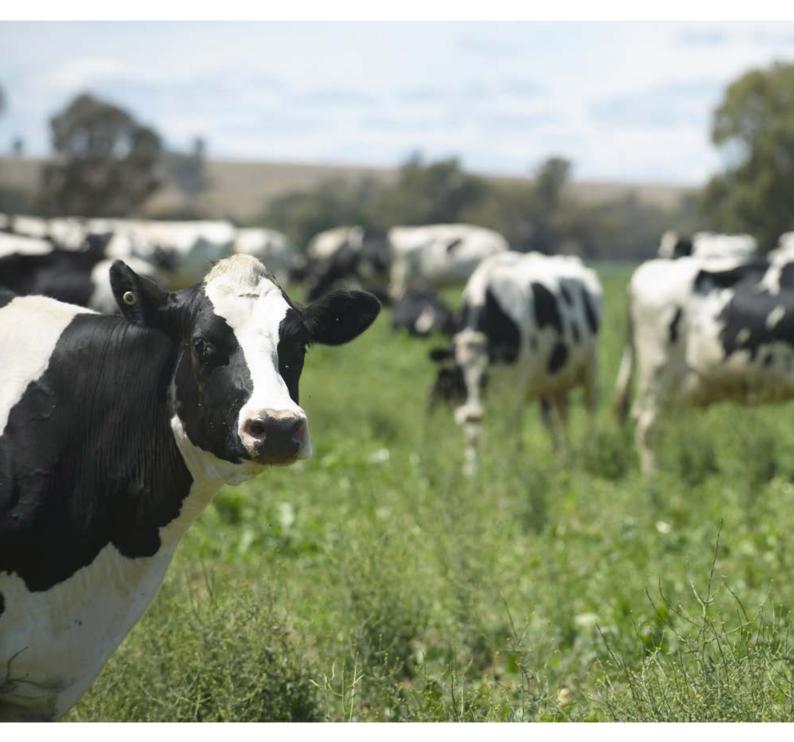
Interpreters detect non woody vegetation change by comparing 2 images. Where the interpreter is confident of the change it will be mapped and reported. If the interpreter has low confidence in the change, it will be noted for review the following year using additional information or imagery.

If the change is confirmed; for example, change from native grassland to cropping, the previous year's report is adjusted to incorporate these confirmed non woody clearing figures. The 2020 non woody clearing figures should be considered preliminary until low confidence areas are confirmed and reported in the 2021 report.

Additional evidence used to verify change may be higher-resolution imagery that clearly identifies cropping lines, or later imagery that shows an established crop. More information about this method is available on request, please email: data.broker@environment.nsw.gov.au.

When undertaking landcover change analysis, the best available cloud free Sentinel-2 scenes are selected for the whole of NSW closest to 1 January for each calendar year. The impact of cloud can be significant with variations in image date of up to 3 months from 1 January.

Amendments to the LLS Act were legislated on 25 August 2017, and whilst the *Native Vegetation Act 2003* was repealed, approvals granted before the repeal remain valid and in force and therefore contribute to explaining clearing each year. The first reporting period was about 4 months after 25 August 2017, on 1 January 2018. For 2017 reporting, images were selected as close as possible to 25 August 2017 to coincide with the start of the legislation. For the 2018 report onwards, images closest to 1 January each year are compared to report landcover change in hectares (ha) for each calendar year.



Vegetation loss by native vegetation regulatory map category

The NVR map is an essential part of the LLS Act (Part 5A) and identifies land categorised under the Act. Figure 1 shows vegetation loss detected across each of the categories. Non woody vegetation loss is not mapped within category 1-exempt land.

Category 1-exempt land showed a slight decrease of 5% in woody clearing in 2020 compared to 2019.

Category 2-regulated land showed a 25% decrease in overall vegetation loss compared to 2019, and both woody and non woody vegetation showed decreased losses. Note that 2020 non woody vegetation loss figures are preliminary until analysis is completed for the 2021 report.

For the category 2-vulnerable and sensitive categories and for the combined vulnerable and sensitive category, there were small increases in the amount of woody vegetation cleared in 2020 compared to 2019.

The increased clearing in the sensitive land category has been identified as a single event, with an error in the associated land management agreement incorrectly identifying the land as sensitive. The corrected data will be included in the next update of the transitional map.

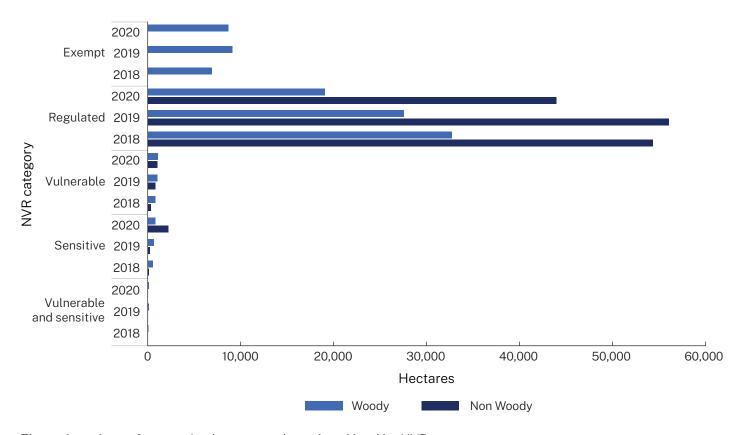


Figure 1 Area of vegetation loss on rural regulated land by NVR map category



Vegetation loss by landcover class

In 2020 there was a total of 68,300 ha of vegetation loss on rural regulated land (including vulnerable and sensitive categories). Non woody vegetation continues to be the largest component of vegetation loss at 69% or 47,200 ha, with the remaining 31% or 21,100 ha woody vegetation loss.

Agriculture remained the largest landcover class to which vegetation loss was attributed. In the agricultural class non woody vegetation loss was almost 4 times that of woody vegetation (Figure 2).

Compared to the prior year, in 2020:

- there was a 43% reduction in woody vegetation loss in the agricultural landcover class
- there was a 49% increase in woody vegetation loss in the forestry landcover class
- woody and non woody vegetation loss within the infrastructure landcover class remained stable.

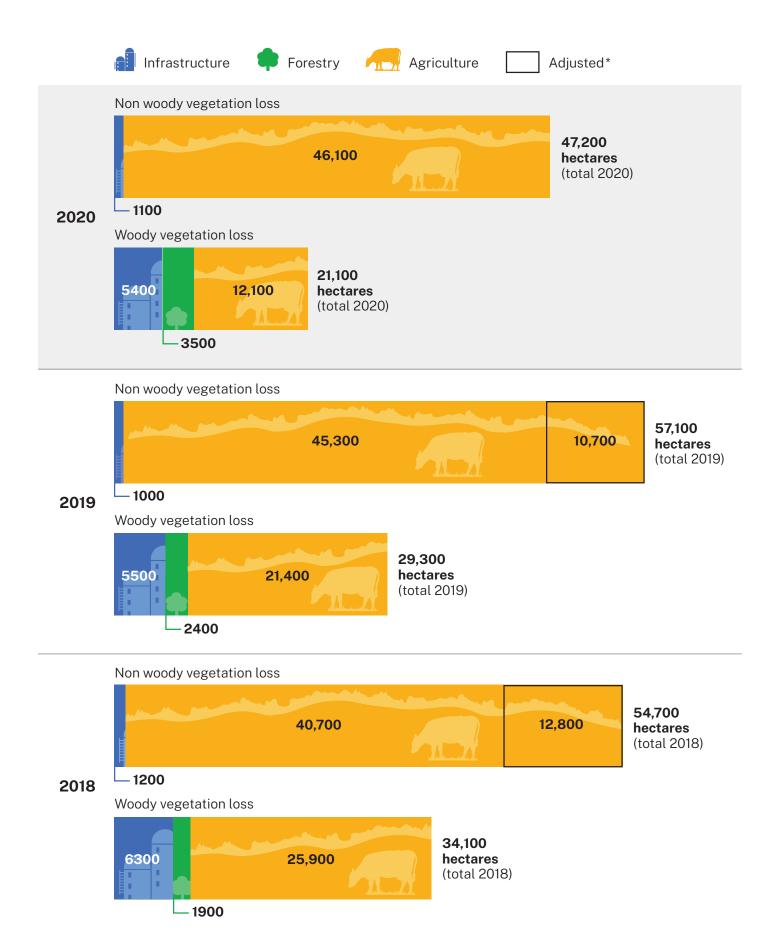


Figure 2 Vegetation loss on rural regulated land by landcover class with figures rounded to the nearest 100 ha

* Adjustments to initial report. Low confidence land management change (non-woody) not included in the initial mapping year.

Adjustment made in the following years report on confirmation of change.

Vegetation loss by authorising Act

Vegetation loss on rural regulated land can be reported according to the authorising Act approvals, as well as loss that remains unallocated (referred to in previous reports as 'unexplained'); that is, loss for which the Department of Planning and Environment (the department) has not been able to identify a formal authorisation.

Over the last 3 years there has been a gradual increase in the proportion of clearing authorised under the LLS Act from 6% in 2018 to 12% in 2020, and a decrease in the proportion of clearing authorised under the former *Native Vegetation Act 2003* (NV Act) from 18% in 2018 to 13% in 2020. The proportion of unallocated woody and non woody vegetation clearing has remained around 75% (Figure 3).

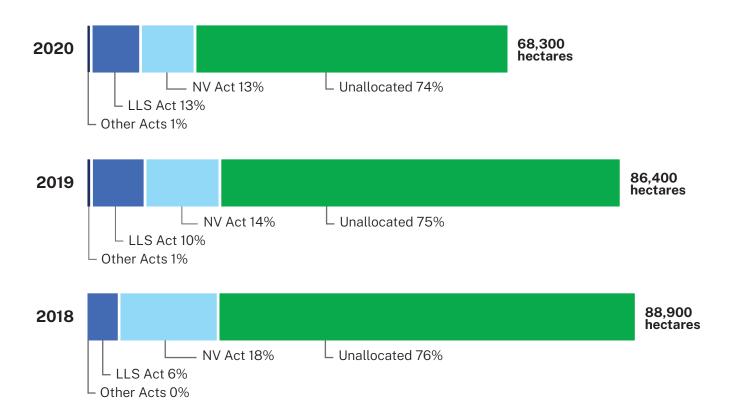


Figure 3 Proportion of vegetation loss on rural regulated land by authorising Act

Preliminary results in Figure 4 show a significant decrease in vegetation loss on rural regulated land in 2020. Each year additional non woody vegetation clearing that occurred in the previous year is confirmed, for example by visible cropping in the following year (shown by the hatched area in Figure 4). Therefore, final figures for 2020 non woody vegetation clearing cannot be confirmed until the 2021 report.

Authorised clearing under the NV Act in 2020 has an increased proportion of non woody vegetation when compared to previous years and a decrease in authorised woody vegetation (from 8,168 ha in 2019 down to 2,309 ha in 2020). Most authorised woody vegetation clearing in 2020 (7,161 ha) was authorised under the LLS Act. Unallocated clearing of woody vegetation decreased from 13,904 hectares in 2019 to 11,076 hectares in 2020. Preliminary numbers for unallocated non woody clearing in 2020 are 39,169 hectares.

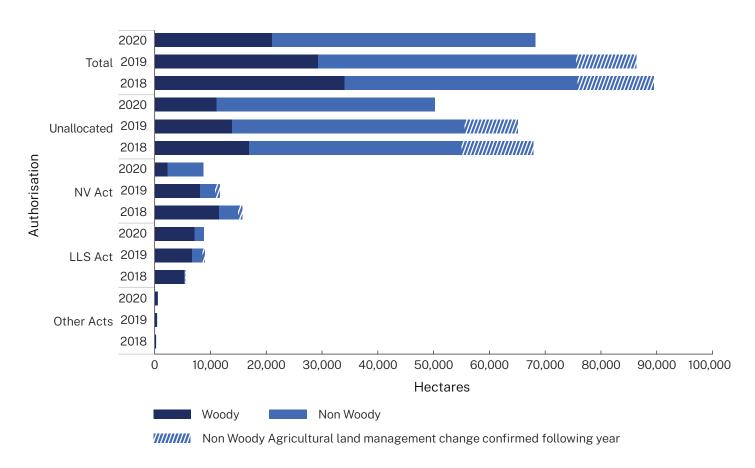


Figure 4 Hectares of vegetation loss on rural regulated land by authorising Act



Authorised and unallocated clearing

Unallocated clearing includes:

- lawful clearing or reduction in landcover on rural regulated land that does not require an approval, notification and/or keeping of records
- vegetation loss for which the department does not have access to information or records that authorise or allocate the clearing to a particular land management activity
- areas that have been potentially cleared unlawfully or are not fully compliant with approvals.

The land management framework gives landholders greater flexibility and discretion to undertake low-risk routine land management activities without the need to seek approval. Consequently, there are several options for clearing without specific approval that are permissible under the current land management framework.

These options include provisions for landholders to remove native vegetation for routine farm management (allowable activities), land management activities under the Land Management Code that do not require certification or notification (managing woody native regrowth in managed native pastures), landholder self-assessment of the level of disturbance of grasslands or ground cover, or other legislative exceptions. In some instances, areas of unallocated clearing may be unlawful which can only be determined by a court of law.

To confirm authorisation, detected areas of vegetation loss are compared against all available spatial data for approvals (certificates and notifications) from the LLS Act or other relevant legislation including the former NV Act.

The Department of Planning and Environment and Local Land Services are working together to consider how some unallocated clearing can be identified and explained. Together the team are gathering evidence and data to continue to allocate clearing events, where possible, as either: clearing under transitional arrangements, allowable activities, clearing under the Land Management code or illegal clearing.

Data released may be updated in future as more accurate or additional information becomes available.

Understanding unallocated clearing

To understand the 50,245 ha of unallocated clearing in 2020 further, the landcover classes assigned to each clearing event have been included in Figure 5. This provides additional information on the likely land management activity undertaken.

Figure 5 shows that 30% of woody and 1% of non woody unallocated clearing is associated with farm infrastructure (e.g. clearing for fences, dams or sheds) and could therefore be allowable activities (subject to prescribed requirements, such as clearing the minimum extent necessary). Other landcover classes (such as infrastructure) account for 21% of woody clearing and 2% of non woody clearing. These could be authorised under other acts and regulations that do not require approval or which The department does not have access to spatial records (for example *Rural Fires Act 1997*).

Approximately half (49%) of unallocated clearing of woody vegetation and 97% of unallocated clearing of non woody vegetation was attributed to the agriculture landcover class. This unallocated clearing may include:

- woody and non woody clearing under the Land Management Code that does not require approval
- non woody clearing under the current transitional arrangements
- allowable activities other than farm infrastructure
- · illegal clearing.

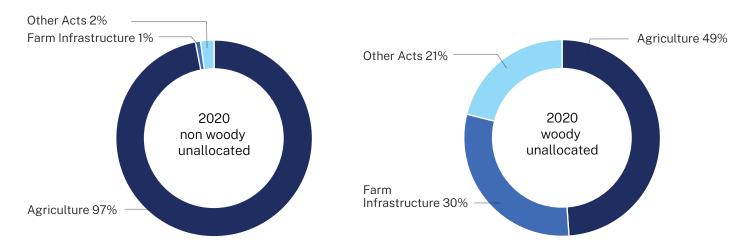


Figure 5 Breakdown of woody and non woody unallocated clearing

Vegetation loss authorised by the *Native Vegetation Act 2003*

Authorised clearing under the NV Act in the 3 years to 2020 is shown in Figure 6. The largest areas approved under the NV Act were authorised as:

- management of invasive native species that improves or maintains environmental outcomes under a property vegetation plan (PVP INS) – 3,706 ha in 2020, indicating a decrease of 60% from 9,321 ha in 2019
- clearing for conservation for long-term environmental benefit under clause 20 in accordance with a PVP (PVP clause 20) – 2.974 ha in 2020
- routine agricultural management activities for the management of invasive native species under Ministerial Order (INS MO) – 1,375 ha in 2020.

Overall, clearing under NV Act approvals decreased by 26% between the 2019 and 2020 reporting periods. See Appendix B for detailed descriptions under the NV Act.

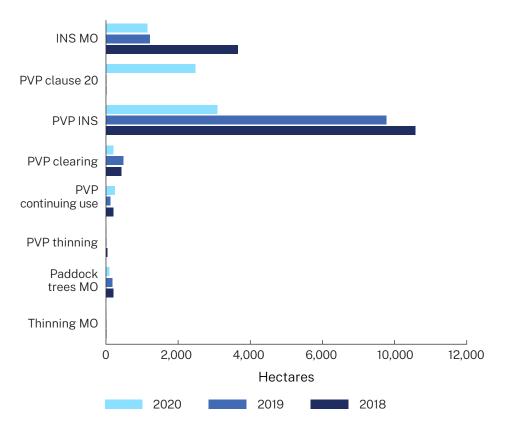


Figure 6 Area of rural regulated land cleared under NV Act authorisation

INS = invasive native species; MO = Ministerial Order; PVP = property vegetation plan



Vegetation loss authorised by the Local Land Services Act 2013

Under the LLS Act, the approval authorisations fall under Part 5A, Division 5 for clearing native vegetation under the Land Management Code, or Part 5B for private native forestry (PNF).

The Land Management Code authorises clearing of native vegetation on category 2-regulated land, provides for establishment and management of set aside areas, and authorises recategorisation of land.

The largest areas of authorised clearing in 2020 under the Land Management Code were:

- Part 2, Div 1 Invasive native species, low impact clearing of invasive native species (626 ha)
- Part 2, Div 2 Invasive native species, moderate impact clearing of invasive native species (2,889 ha)
- Part 3, Div 3 Pasture expansion, mosaic thinning of woody native vegetation (862 ha)
- Part 5, Div 2 Equity, clearing compromised native ground cover (130 ha)
- Part 5, Div 4 Equity, removing native vegetation from regulated rural areas (2,028 ha)
- PNF plans (1,917 ha).

In 2020 increased application occurred over 6 of the 15 types of authorisation. The greatest increase was in clearing for PNF plans, which more than doubled from 949 ha in 2019 to 1,917 ha in 2020.

Figure 7 shows slight decreases from 2019 figures in the area being cleared for moderate impact clearing of invasive native species (Part 2, Div 2) and removing native vegetation from regulated rural areas (Part 5, Div 4), though these remained the highest use categories in 2020.

Information on the approved areas for clearing for each Land Management Code is available in the 'Results for landcover change on rural regulated land in NSW 2020' spreadsheet.

Invasive native species management, the largest category of clearing under the Land Management Code in 2020 is intended to improve the local environment by removing some native plants that have reached very high densities, dominating an area. These activities are designed to promote the regeneration and regrowth of a more natural and diverse range of native vegetation.

See Appendix B for detailed descriptions under the LLS Act.

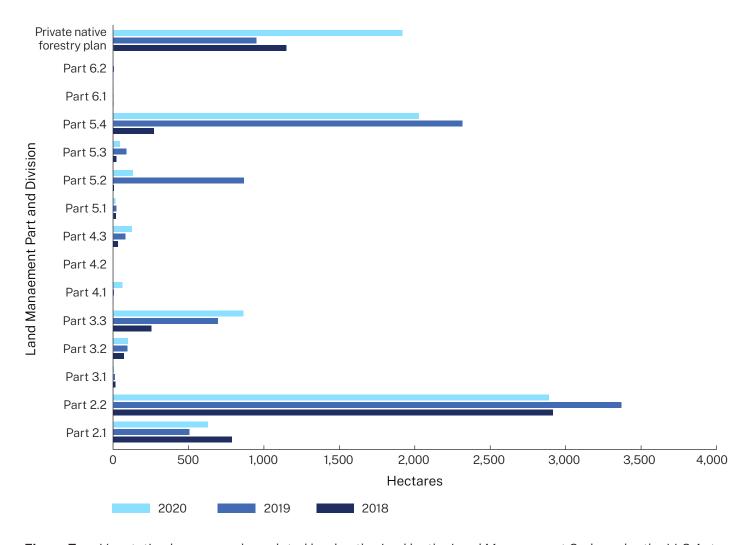


Figure 7 Vegetation loss on rural regulated land authorised by the Land Management Code under the LLS Act

Vegetation loss by Local Land Services region

Authorised clearing for all Local Land Services (LLS) regions has been documented in the 'Results for landcover change on rural regulated land in NSW 2020' spreadsheet. The results for 3 LLS regions are shown in Figure 8.

In 2020, Central West, North West and Western LLS regions remained the most active with a total of 20,863 ha, 11,299 ha and 11,010 ha cleared, respectively. Combined, these 3 regions accounted for 63% of the total vegetation loss on rural regulated land; however, total vegetation loss fell across all 3 regions between 2019 and 2020, by 19%, 58% and 29% for the Central West, North West and Western LLS regions, respectively.

In the Central West LLS region, authorised clearing under the LLS Act decreased from 11% to 5% of total area cleared between 2019 and 2020, while authorised clearing under the NV Act increased from 14% to 27% of total area cleared.

Clearing in the North West LLS region was consistent with previous years with 92% unallocated in 2020, and 8% authorisations equally split across the LLS Act and NV Act.

In the Western LLS region authorised clearing under the LLS Act increased from 20% to 39% of total area cleared between 2019 and 2020, while authorised clearing under the NV Act decreased from 47% to 24% of total area cleared. The Western LLS region again showed the highest proportion of authorised clearing in 2020 at 63%.

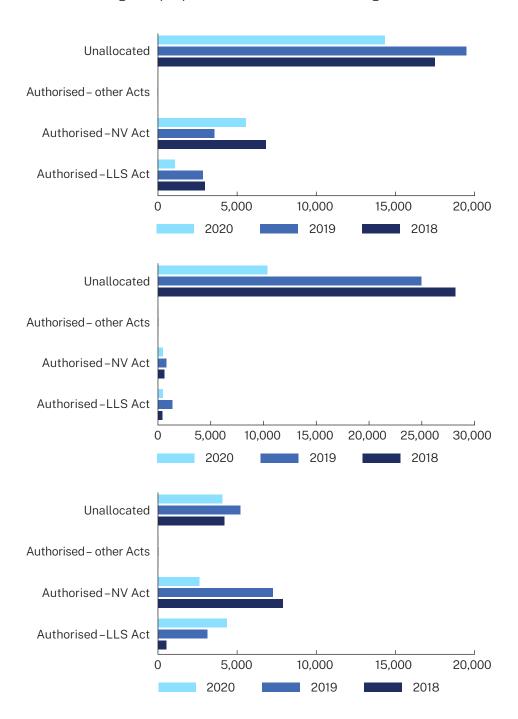


Figure 8 Vegetation loss on rural regulated land by authorising Act for 3 LLS regions: (from top) Central West, North West and Western



Appendix A: Criteria for rural regulated land

Types of land classified as category 2regulated land

The following land is classified as category 2-regulated:

- Not cleared of native vegetation on 1 January 1990 or proven unlawfully cleared since that date
- Coastal Management State Environmental Planning Policy (coastal wetlands and littoral rainforest) proximity zone
- Publicly funded vegetation conservation and restoration
- Private native forestry approvals
- Remedial directions
- Biocertification (conservation)
- Field assessed as not low conservation value grasslands/ground cover
- Travelling stock route (except Western Division)
- Low conservation value grasslands within dripline of woody vegetation deemed as regulated

Types of land classified as category 2–sensitive regulated land

The following land is classified as category 2-sensitive regulated:

- Coastal Management State Environmental Planning Policy (coastal wetlands and littoral rainforest) except proximity zone
- Publicly funded vegetation conservation and restoration, private land conservation agreements (Biodiversity Conservation Act 2016, National Parks and Wildlife Act 1974 or Nature Conservation Trust Act 2001), while an obligation remains
- Rainforest and old growth forest (from regional forest agreements – comprehensive regional assessment)
- Core koala habitat (in an approved koala plan of management)
- Ramsar wetland
- Critically endangered ecological communities
- Biocertification (conservation)
- Field assessed as high conservation value grasslands/ground cover
- Land containing critically endangered plants
- Condition of Environmental Planning and Assessment Act 1979 consent
- Plantations and Reafforestation Act 1999 retained vegetation and drainage areas
- NV Act, PVP offsets and Land Management Code set aside areas

Source: LLS Act (section 60I)

Types of land classified as category 2–vulnerable regulated land

These criteria have been carried over from definitions in previous legislation during the transitional period to minimise soil erosion and protect stream water quality. Transitional arrangements are in place until a comprehensive NVR map with land categories is published.

Under the LLS Act (section 60F 2c), vulnerable regulated land is classified as:

- steep land (slope 18 degrees and over) or highly erodible land
- protected riparian land
- special category land including land with salinity hazard, prone to mass movement or land slip.



Appendix B: Clearing on rural regulated land authorised under the various Acts

 Table 2
 Authorising Acts under which land management is legislated

Authorising Act	Description
Local Land Services Act 2013 (LLS Act)	Under the LLS Act, the aim of the Land Management Code is to authorise clearing of native vegetation on category 2-regulated land
Native Vegetation Act 2003 (NV Act)	Clearing is associated with an authorisation under the former NV Act. Approvals prior to the repeal of the Act are still valid and in force.
Other Acts	Clearing associated with other Acts, predominately the <i>Plantations and Reafforestation Act 1999</i>
Unallocated	Other clearing detected that has not been associated with an authorisation

Table 3 Authorisations under the NV Act

Authorisation	Description
Invasive native species, Ministerial Order (MO)	Routine agricultural management activity for the management of invasive native species under an MO
Property vegetation plan (PVP) clause 20	Clearing for conservation or long-term environmental benefit under clause 20 in accordance with a PVP
PVP invasive native species	Management of invasive native species that improves or maintains environmental outcomes under a PVP
PVP clearing	Broadscale clearing that improves or maintains environmental outcomes under a PVP
PVP continuing use	Clearing of regrowth authorised under a PVP
PVP thinning	Ecological thinning of vegetation that improves or maintains environmental outcomes under a PVP
Paddock trees MO	Routine agricultural management activity for the clearing of paddock trees under an MO
Thinning MO	Routine agricultural management activity for the ecological thinning of vegetation under an MO

 Table 4
 Authorisations under the LLS Act

Authorisation	Description
Part 2, Div 2	Land Management Code Part 2 Invasive native species, Division 1–low impact clearing of invasive native species
Part 2, Div 2	Land Management Code Part 2 Invasive native species, Division 2 – moderate impact clearing of invasive native species
Part 3, Div 1	Land Management Code Part 3 Pasture expansion, Division 1 – uniform thinning of woody native vegetation (notification)
Part 3, Div 2	Land Management Code Part 3 Pasture expansion, Division 2 – uniform thinning of woody native vegetation (certification)
Part 3, Div 3	Land Management Code Part 3 Pasture expansion, Division 3 – mosaic thinning of woody native vegetation
Part 4, Div 1	Land Management Code Part 4 Continuing use, Division 1 – managing woody native regrowth in managed native pastures
Part 4, Div 2	Land Management Code Part 4 Continuing use, Division 2 – continuation of land management activities undertaken after 1990
Part 4, Div 3	Land Management Code Part 4 Continuing use, Division 3 – continuation of rotational activity undertaken prior to 1990
Part 5, Div 1	Land Management Code Part 5 Equity, Division 1 – removing native vegetation from paddock tree areas
Part 5, Div 2	Land Management Code Part 5 Equity, Division 2 – clearing compromised native ground cover
Part 5, Div 3	Land Management Code Part 5 Equity, Division 3 – removing native vegetation from small areas
Part 5, Div 4	Land Management Code Part 5 Equity, Division 4 – removing native vegetation from regulated rural areas
Part 6, Div 1	Land Management Code Part 6 Farm plan, Division 1–removing native vegetation from paddock tree areas
Part 6, Div 2	Land Management Code Part 6 Farm Plan, Division 2 – removing native vegetation from regulated rural areas
Private native forestry (PNF) plan	PNF plans under Part 5B of the LLS Act



More information

- DPE (Department of Planning and Environment) (2022), <u>Landcover monitoring and reporting webpage</u>, Environment and Heritage website, accessed 31 May 2022.
- Land Management (Native Vegetation) Code 2018
- Local Land Services Act 2013
- Local Land Services Regulation 2014
- Native Vegetation Act 2003
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