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Original

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Vegetation control - Technical and management aspects

Contrôle de la végétation - Aspects techniques et managériaux

Vegetationskontrolle - technische und Managementaspekte



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Complete overhaul of leaflet

The person responsible for this leaflet is named in the UIC Code

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Summary

Over the last 10 years new methods for vegetation control have been investigated in order to reduce maintenance costs and the impact on the environment. These methods were reviewed in a UIC study on vegetation control completed in 2002 ("Herbizidauswahl und -Anwendung im Oberbau unter Berücksichtigung des Umweltschutzes"). On the basis of this work, it was decided to conduct an extensive revision of the 1992 edition of *UIC Leaflet 723*.

The purpose of this new revised edition is to:

- offer guidance to railway infrastructure management and staff in addressing the issue of vegetation control on the railway,
- provide a short justification for the need to control vegetation,
- give an overview on different approaches used for vegetation control by railway companies, together with some basic information about vegetation control management systems.

1 - Definitions

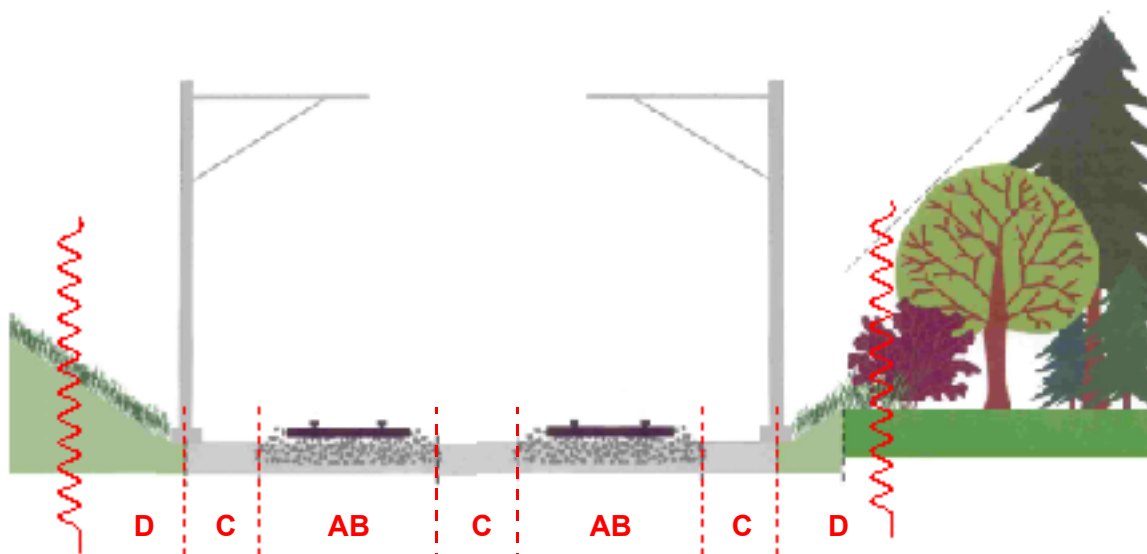


Fig. 1 - A schematic representation of the areas for vegetation control

Vegetation control areas	The railway companies often separate their railway lines into several sections to reflect differing vegetation control measures adopted, frequency of application, the varying duration of application and in some cases shared organisational responsibilities.
Area AB	<i>Ballast bed</i> : part of the track-bed made of ballast or gravel including embedded sleepers and rails. <i>Slab track</i> : concrete track-bed construction.
Area C	<i>Transition area</i> : part of the track abutting the slope on both sides of the ballast bed, includes walkway for maintenance/ inspection purposes and areas between two tracks (lines with 2 or more tracks). Drainage ditches are also built in Area C in some cases.
Area D	<i>Embankment</i> : the slopes alongside the track away from the track adjoining Area C

Maintenance in all other areas outside the embankment is not covered by this document.

2 - Need for vegetation control

In general plants tend to colonise all vegetation-free areas and therefore vegetation control is necessary for the reasons explained in the following points.

The aim of vegetation control in the different areas is:

- to keep the track (Areas AB and C) free of vegetation,
- to keep vegetation on the embankment (Area D) within certain limits.

2.1 - Within the track (Areas AB and C)

2.1.1 - Growing process within the track

The ballast bed (area AB) is usually a dry and hot place, but as time goes by the ballast attrition and the input of dirt from outside (air, wagons) leads to an increase in fine material between the ballast. As a result, the moisture content starts to increase, growing conditions for plants improve and the sub-layer may be weakened as well.

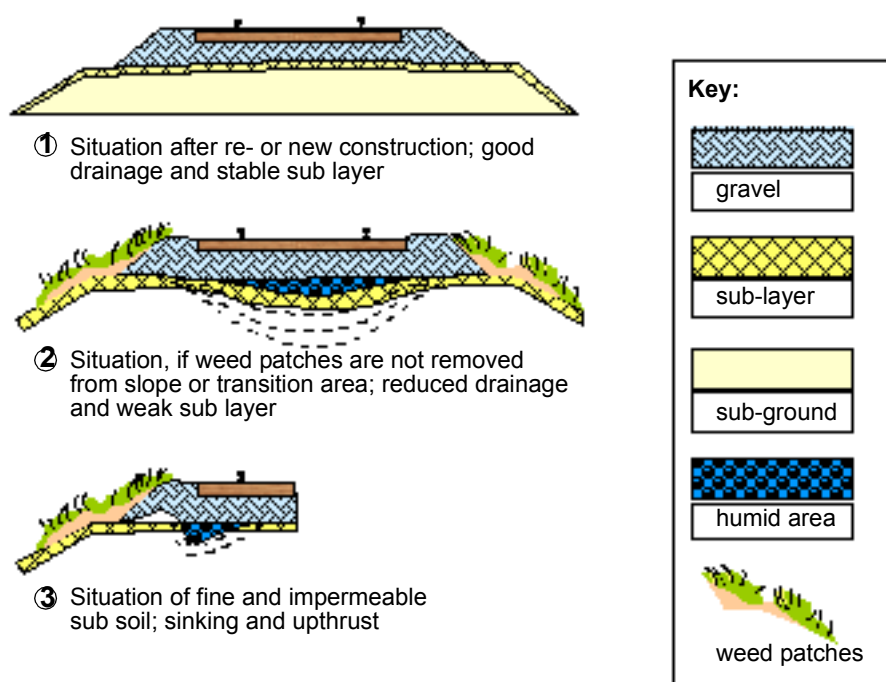


Fig. 2 - Long-term development of track under the influence of plants

Another process of vegetation development takes place in the transition area (area C), where plant growth usually starts because plants can find a suitable environment. Plants can grow in from the adjacent area either by sub-ground or above ground shoots, runners or seeds. When the vegetation reaches the base of the ballast slope, the combination of plant roots and fine material from the ballast closes the coarse pores, which may lead to reduced drainage of the ballast bed. As a consequence