

Wisconsin's Forestland Woody Biomass Harvesting Guidelines

Appendix D: Identifying Sites Limited under Guidelines 3.B, 4.B, and 5.B

New Text from Soils Subcommittee:

Soil Complexes and Inclusions

Soils that are limited by the biomass harvesting guidelines are found in the following list. The list identifies specific soil map units, limiting components of the soil map unit, reasons for the limitation, and the percent of the map unit that is limiting.

Some soil map units, such as Boone sand, are comprised of only one soil component. Boone is the limiting component because it is a dry nutrient-poor sand. Applying biomass harvesting guidelines to a timber sale on Boone sand is fairly straight-forward; 100% of the map unit is Boone sand and the guidelines would apply equally over the entire site.

However, in many soils, one may find inclusions of different soils that can make up as much as 25% of the soil map unit. Fine woody material may be harvested on a soil inclusion if there is evidence that it is a suitable soil. Biomass harvests should be avoided on obviously unsuitable sites, such as small inclusions of dysic histosols.

Other soil map units are complexes which consist of two or more dissimilar components. The soils are mapped together because they cannot be mapped separately at a scale of 1:24,000. An example of a soil complex is Sarona-Vilas complex. It is on the list of soils limited by the biomass harvesting guidelines because Vilas is a dry nutrient-poor sand. However, Vilas only comprises 30% to 40% of the map unit, depending on a site's topography. This means that for the Sarona-Vilas map unit, 60% to 70% of the map unit (Sarona) can support a biomass harvest, while the remainder (Vilas) cannot.

Applying the biomass harvesting guidelines to a timber sale involving complexes can require more work. There are several ways to approach a biomass harvest on a soil complex.

Option 1 - Forego Biomass Harvest

On some sites, it may simply be most efficient to forego harvest of fine woody material on the entire soil map unit. This may be the best approach if the soils are similar in appearance as it may be difficult to identify which soil is limited and which is not. This may also be the best approach if the complex includes wetlands or other sensitive features that would be difficult to avoid operationally. It is important to remember that these sites can still support a traditional bolewood harvest.

Option 2 – Identify Suitable Soils

If the soils in the complex can be readily identified in the field, it may be feasible to harvest biomass on portions of the timber sale. Identify by mapping, with flagging, or by other methods, parts of the soil map unit that are suitable for harvest of fine woody material, and proceed with the harvest on those portions of the map unit.

Option 3 – Evaluate the Site

Another option is to evaluate the site and determine whether or not the site is suitable for a biomass harvest, by considering soils, vegetation, timber type, site index, and a number of other site characteristics. The utility of this approach depends on how much of the soil map unit is limiting. This method relies on best professional judgment, familiarity with the site, surrounding soils, and forest characteristics. It is important to document the rationale for the decision so that someone else reviewing the documentation would reach the same logical conclusion.

If **81% to 100%** of a soil map unit is limiting, the site is unlikely to support a biomass harvest. With this high of a percentage of a limiting soil, it is difficult to justify the additional investment in time and evaluation to try to identify portions of site that can support a biomass harvest. However, it may still be appropriate to modify the guidelines based on specific site conditions, operational issues, or management objectives.

For example, Vilas loamy sand can be 90% to 95% limiting because Vilas is a dry nutrient-poor sandy soil. There may be inclusions of other soils that account for 5% to 10% of the map unit that may support a biomass harvest; however, it may be very difficult and labor intensive to identify any small areas that contain a suitably rich soil.

If **51% to 80%** of a soil map unit is limiting, conduct a field site visit and evaluate the site to determine whether or not a biomass harvest is appropriate on the entire site or possibly portions of the site. The goal of the site visit and evaluation is to look at a number of site characteristics to determine whether or not the site is appropriate for a biomass harvest. In this case, the soils may not be readily discernible, but other site factors may indicate the fertility of the site. Factors to consider include composition of soil, site index, timber type, habitat type, management objectives, land type associations (LTAs), glacial landforms, and other available site characteristics. This method relies on best professional development and familiarity with the area, soils, and forest stands.

As an example, consider the Hastrup-Lundeen-Rock outcrop complex. Hastrup and Rock outcrop comprise 80% of the map unit and limit biomass harvests because the soils are shallow to bedrock. The rock outcrops should be easy to identify and exclude from the biomass harvest. Distinguishing between the Hastrup and Lundeen may be more difficult, but not impossible. Lundeen is a deeper soil than Hastrup and may be slightly more productive. Compare the stand in question to other stands growing on Hastrup and Lundeen – which one is the stand more similar to? Look at the composition of the soil (in this case, primarily depth to bedrock), the site index, timber type, and other important factors to see if there is strong correlation with one soil type or the other.

If the site appears to be more closely related to Lundeen, then it would be a suitable site to conduct a biomass harvest. If the site appears to more similar to Hastrup or if it is not possible to make a distinction, then this would not be a suitable site for a biomass harvest.

If **26% to 50%** of a soil map unit is limiting, then conduct a field site visit and determine whether or not a biomass harvest is appropriate on the entire site or possibly portions of the site. The goal of the site visit is to determine whether or not that site is appropriate for

a biomass harvest. Within the harvest boundary and within the soil map unit, are there any discernible patterns in vegetation or indicators of a richer site? How much of the soil map unit is covered by the harvest area? This determination is again based on best professional judgment. The level of investigation required in this situation is not as rigorous as above because there is a smaller likelihood of encountering a limiting soil.

For example, the Keweenaw, stony-Rubicon complex is limited by Rubicon, a dry nutrient-poor sand which covers 30% of the map unit. If the proposed harvest covers 15% of the map unit and 30% of the map unit is limited, then there is a good chance that the Rubicon soil may be avoided. Visit the site and compare the proposed harvest area to the surrounding areas and other sites that are on Rubicon. Does the site appear an acceptable site for a biomass harvest? Are there any indicators that the site may be on a poorer soil?

If 0% to 25% of a soil map unit is limiting, then the soil map unit was not included on the list, and the site is suitable for a biomass harvest. As described above, biomass harvests should be avoided on obviously unsuitable sites, such as small inclusions of dysic histosols.

Previous Text:

Soil Complexes and Inclusions

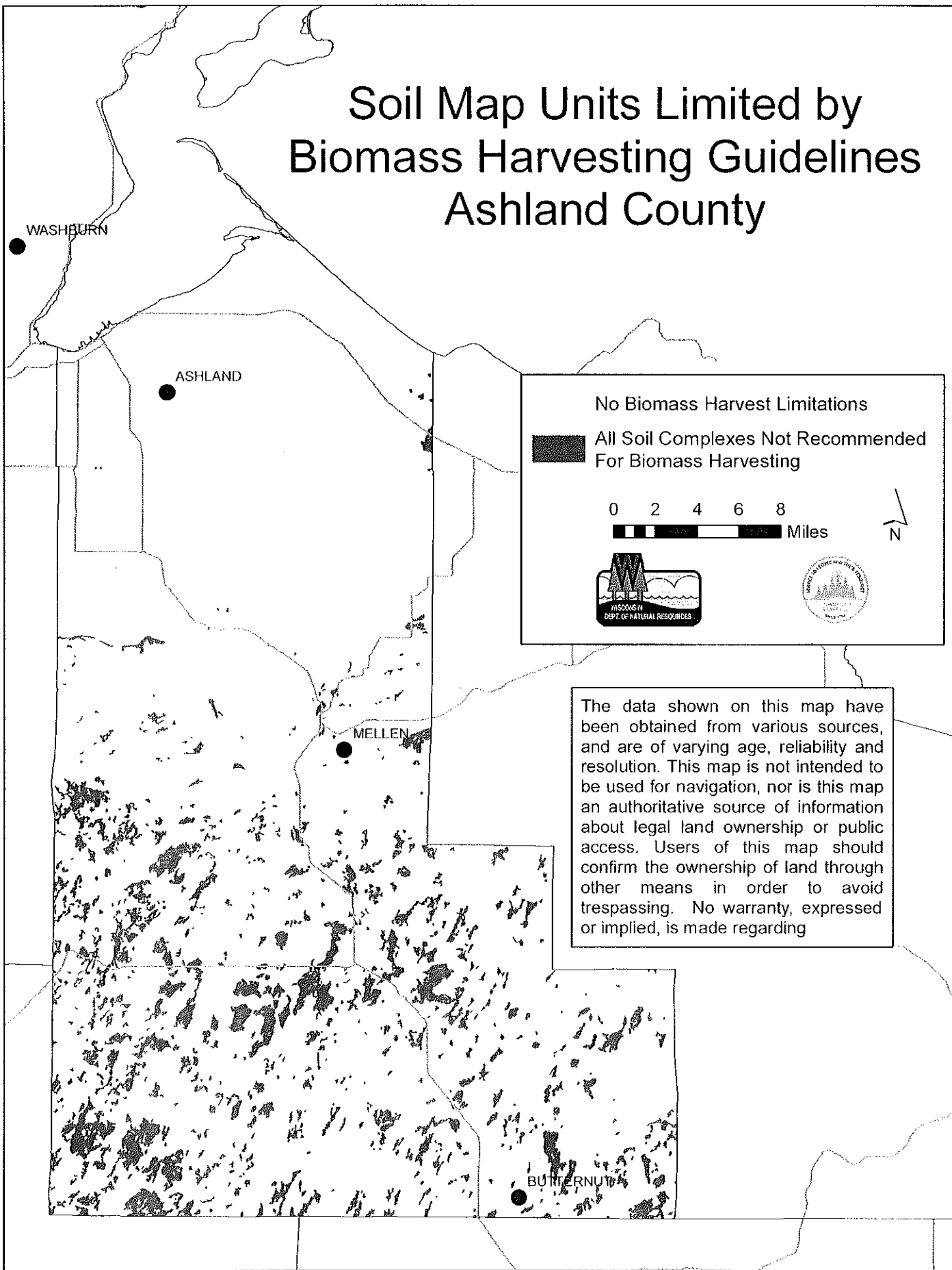
Sometimes, a map unit is a “soil complex” which includes two or more soils mapped together because they are so mixed or of so small an area that they cannot be mapped separately. If one or more of the soils in a complex are limited by the guidelines but the other(s) are not, there are two possible approaches.

1) The user may decide to forego harvest of fine woody material on the whole soil map unit. This may be the best approach if the soils are similar in appearance, because in this case it would be difficult to identify which soil is limited and which is not. This may also be the best approach if the complex includes wetlands or sensitive features that would be difficult to avoid operationally.

2) The user may identify (by mapping, or with the use of field markers such as flagging) parts of the soil map unit that are suitable for harvest of fine woody debris, and proceed with the harvest on that portion of the map unit. This approach would be most feasible for soils that are different enough in appearance to be readily identified in the field.

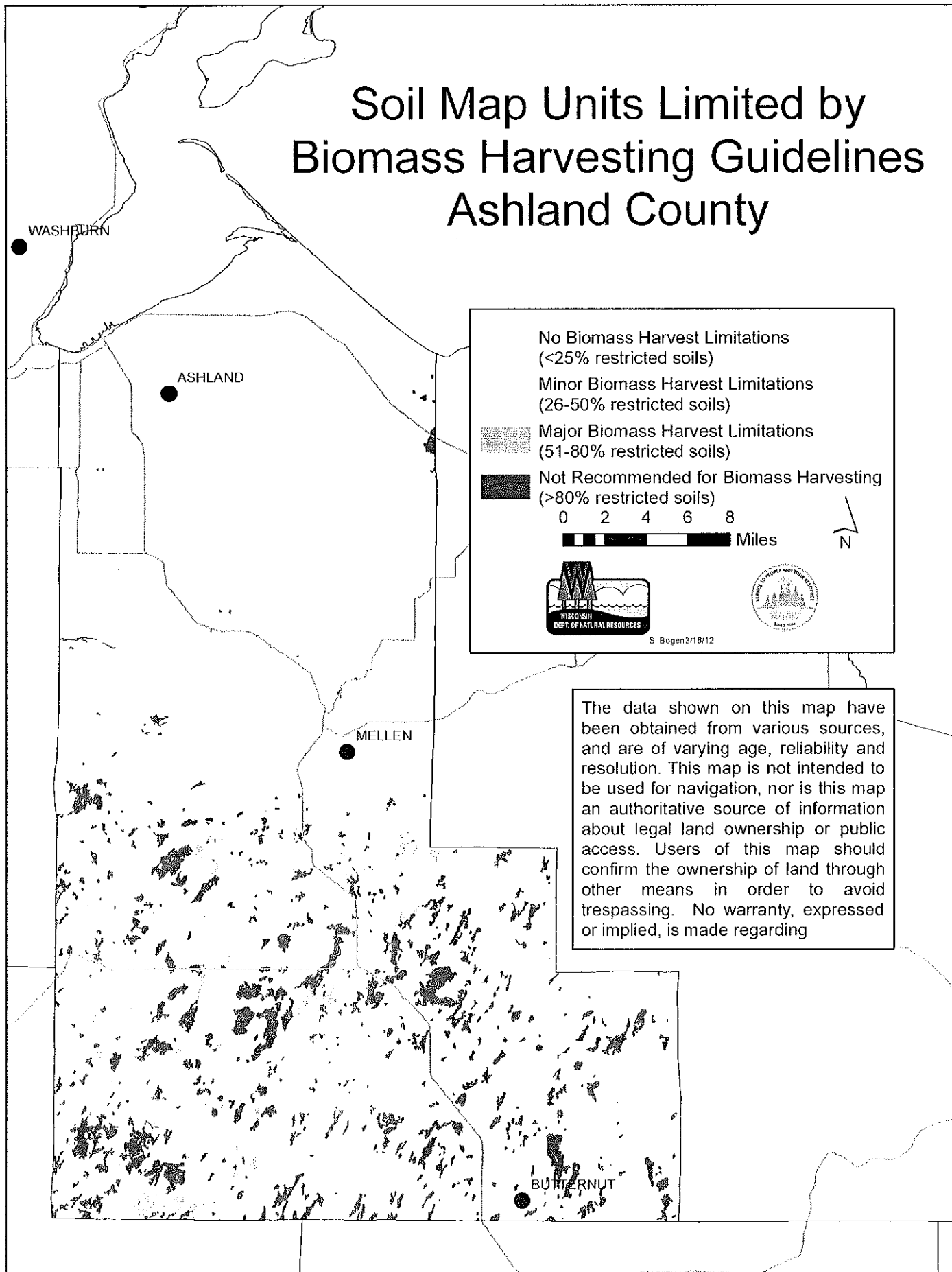
Most soil map units contain “inclusions” of different soils that can make up as much as 25% of the unit. A user may harvest fine woody material on a soil inclusion if there is evidence that it is a suitable soil.

Soil Map Units Limited by Biomass Harvesting Guidelines Ashland County



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