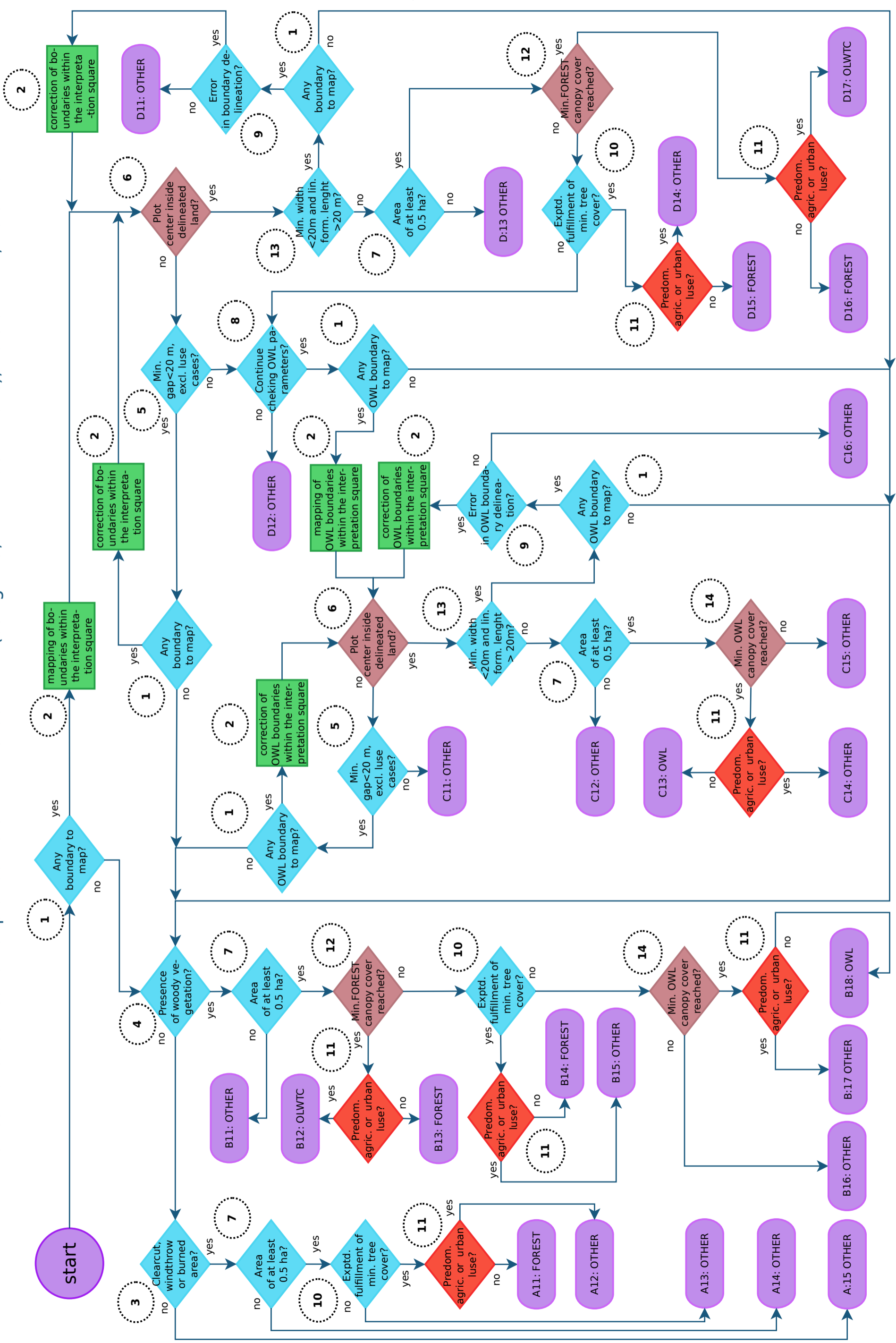


Terrestrial classification of plot centers within Czech NFI2 (using FAO, ENFIN definitions), version 1.11, 28.3.2011



Explanatory notes

1. Here, the term boundary applies to: A) An obvious edge of a landuse category (according to FAO and ENFIN). It is typically coincident with a landuse transition (e.g. arable land - managed forest). B) A stand edge (either stand of trees, or shrubs or both), which has not necessarily to be a boundary of a landuse category (further checks are done later in the schema). C) An edge which is not a stand edge (the stand has been removed - clearcut, windthrow, burned area etc.), it is not necessary for this edge to be a boundary of a landuse category (further checks are done later in the schema). Edges are mapped only if they cross the area of the interpretation square (51x51m). Only parts inside the interpretation square are finally preserved, although the course of edges must be sometimes specified outside the interpretation square (checking of min. area, sometimes also min. width). First of all we think about whether a boundary of FOREST category can be delineated. Doing this, in most cases and at the same time, we think about a possible delineation of a potential OLWTC boundary, since boundaries for the two categories are similarly defined. However, the two boundaries differ when the minimum canopy cover of trees at least 5m high is not reached. Edges under the c) option can be delineated only for supposed FOREST category. In a next step (either in different part of the interpretation square or in the same one if FOREST and OLWTC edges could not be reasonably delineated here) we try to delineate an edge of a potential OWL category. In OLWTC and OWL the edges are defined by a connection line among live trees (in OLWTC with an actual height of at least 5m, in OWL also among live shrubs of at least 0.5m height). Details regarding the mapping of boundaries are given under node 2. Edges are not delineated for stands (lands) with total area clearly below 0.5ha (avoiding delineation of small tree patches obviously outside the target landuse categories). Boundaries must be delineated in all other cases, even when the fulfilment of the other criteria (typically minimum width) is in doubt (all parameters are going to be checked later in the schema, which has to be looked through entirely). The delineation rules are designed in order to define a piece of land, in relation to which the parameters of particular landuse categories are assessed and checked. SPECIAL CASES: Regarding the FOREST category a borderline between a clearcut (less typically windthrow or burned) area and surrounding stand(s) is not considered a boundary. However in case of OLWTC and OWL such boundaries have to be taken into account, since the concept of temporarily unstocked areas is not applicable to these two categories. Boundaries of linear formations (e.g. windbreaks, width < 20m, length >20m) have to be delineated unless the total area is clearly below 0.5ha. Regarding the decision whether to delineate the boundary or not, the total area is assessed including also stand(s) the linear formation may connect to.
2. In node 1. we should have also decided, for which category the boundary is going to be mapped. First, we shall consider a boundary of FOREST (OLWTC) if applicable. If the schema leads to a category other than FOREST (OLWTC), we should consider a delineation of a boundary according to rules applicable to OWL (see node 8.). Irrespective of landuse categories, the boundary is made up by connected, straight lines of a maximum length but not exceeding 20m. Another rule to follow says that a boundary must never cross borderlines between areas of different landuse (predominantly agricultural, predominantly urban, forestry landuse). If the outer crown edges of trees or shrubs run over an area of different landuse (e.g. the stems of individuals are located in an area without a predominant agricultural or urban usage whereas the outer crown edges run over agricultural land), the boundary must agree with the landuse borderline. However, if there is an unstocked area (typically an unfarmed baulk) adjacent to a stand without landuse change, the boundary is delineated along the stand i.e. not along the next landuse transition (between the baulk and e.g. a field or meadow). The rules for boundary delineation specific to landuse categories are the following: A) FOREST - in most cases the FOREST boundary consists of lines connecting crown edges of neighbouring live trees. In case of temporarily unstocked areas (minimum canopy cover of trees of at least 5m height will be reached in the near future) the boundary matches apparent landuse borderlines (e.g. fenced reforested areas, clearcut-agricultural land transitions etc.). If the landuse transition is not apparent, the boundary is made up of straight line segments connecting stumps, crown edges of newly planted trees, individual seedlings or patches of them or any other marks of the former or future stand boundaries. In naturally developing stands (typically abandoned agricultural land) the boundary is made up of straight lines connecting crown edges of individual trees (small trees and seedlings may be connected only if they are well established i.e. there is no doubt about their capability to reach 5m height in the near future). B) OLWTC- the boundary may connect only crown edges of live trees with a minimum height of 5m in the moment of the field survey. No temporarily unstocked areas of predominantly agricultural or urban use must be assigned to OLWTC category and their boundaries delineated. C) OWL - the boundary may connect only live trees of at least 5m height and live shrubs of at least 0.5m height. For the purposes of OWL distinction, trees below 5m are considered shrubs if their height is at least 0.5m. Because the OWL category may be considered only in cases when the plot center could not be classified as FOREST, young forest stands (reaching the required minimum height and canopy cover in the near future) will never be classified as OWL. SPECIAL CASES: Individuals of typically shrubby species (common elder, mountain pine, blackthorn, hazel, juniper, yew, some willow species etc.) are considered trees provided their height and diameter breast height are at least of 5m and 7cm respectively. A boundary between a linear formation and an adjacent stand reaching area of min. 0.5ha and width of min. 20m is drawn in the innermost place (referring to the stand fulfilling min. area and width), where the width drops below 20m.
3. Answer "yes" if the inventory point (the plot center) is located in clearcut, windthrow, burned or any similar area, where woody vegetation has been recently removed or damaged. Here it is not decisive if it is unstocked temporarily or not, or whether the minimum area of 0.5ha is reached. These and other parameters are checked later in the schema.
4. Answer "yes" if there is some live woody vegetation present within the interpretation square (51x51m).
5. Answer "yes" if the minimum gap size is below 20m and this is not caused by present landuse transition(s) to be respected. In situation, when the plot center is located outside the piece of land(s) delineated by boundaries, we assess whether the vectorization of the boundary was correct in terms of using straight lines of maximum length not exceeding 20m. Provided lines shorter than necessary were used, a gap might have been created (the boundary has been mapped where it actually should not be). The minimum size of a gap is measured as the minimum length of an arbitrary straight line going through the plot center and connecting any two opposite boundaries. In cases where the gap size is below 20m, we check whether this might be a consequence of respecting landuse transition(s). For example a paved road without exclusive forestry usage has to be cut off by boundaries from adjacent forest stand - there is a landuse transition between the road (predominantly urban) and the stand (not predominantly urban nor predominantly agricultural -> hence forestry landuse).
6. Answer "yes" if the plot center is located inside a piece of land delineated by the boundaries, supposedly belonging to one of the categories FOREST, OLWTC or OWL.
7. Answer "yes" if the area of the piece of land containing the plot center reaches at least 0.5ha. Obviously the course of boundaries outside the interpretation square has to be taken into account.
8. Answer "no" whenever the OWL category can be safely excluded (typically predominant agricultural or urban landuse).
9. Answer "yes" whenever an error of boundary delineation has been identified. Typically in situation when a gap smaller than 20m has been created (using lines shorter than necessary, see node 1.2 and 5).
10. Answer "yes" if the plot center is located in a temporarily unstocked area (clearcuts, windthrows, burned areas etc.) or succession stands (abandoned agricultural areas, abandoned orchards, vineyards etc.), where the minimum 10% canopy cover of trees with height of at least 5m will be reached in the near future (10-15 years). Succession stands should consist of well established live individuals.
11. Predominantly agricultural landuse is considered when there is a yearly soil cultivation, fertilization and less obviously when grass is mowed, mulched, treated by herbicide at least once a year or when there is an intensive pasture during vegetation season or the whole year. Predominantly urban landuse relates to human settlements, recreation, industry and infrastructures.
- SPECIAL CASES: Small constructions serving to recreational purposes (typically established and maintained by forest enterprises, shelters, gazebos, fireplaces etc.) do not belong to predominantly urban usage - these areas are handled as "gaps", which might be classified to FOREST (OWL) provided they do not exceed the size of 20m (see node 5). Populated buildings surrounded by forest (OWL) stands (gamekeeper's lodges, cottages, recreational houses) and other related buildings (barns, garages) belong to predominantly urban landuse. Paved roads of width above 4m, railroads, protective belts along powerlines and pipelines and similar constructions (water tanks, wells etc.) belong to predominantly urban landuse.
12. Answer "yes" if the canopy cover of live trees with height of at least 5m is at least 10%. Only trees located inside the piece of land delineated by boundaries and containing the plot center are included into the calculation of canopy cover. See special cases regarding the definition of trees mentioned under node 2. Canopy cover (crown coverage, crown closure, canopy closure) is defined as the proportion of land covered by crowns.
13. Answer "yes" whenever the plot center is located inside a piece of land (supposedly FOREST, OLWTC or OWL) of minimum width of less than 20m and length of more than 20m. The minimum width is defined as the shortest possible line going through the plot center, connecting two opposite boundaries of the delineated piece of land. The length is measured as the length of the central axis (curvilinear length). Such stands (possibly temporarily unstocked) are called linear formations.
- SPECIAL CASES: See node 1 for the definition of the area of a linear formation applicable to delineation of boundaries, and special cases under node 2 describing the way how linear formations are separated by a boundary from regular stands fulfilling minimum area and width.
14. The minimum OWL canopy cover is fulfilled if any of the two conditions is met A) the canopy cover of trees is at least 5% but still below 10%. B) the sum of canopy cover of trees and shrubs reaches at least 10% and the canopy cover of trees alone does not reach 10% (in that case it would be FOREST). Only trees/shrubs located inside the stand delineated by boundaries and containing the plot center are considered for the calculation of canopy cover. See definition of canopy cover in node 12. SPECIAL CASES: For the distinction of OWL live trees with height less than 5m are handled as shrubs, provided their height reaches at least 0.5m.