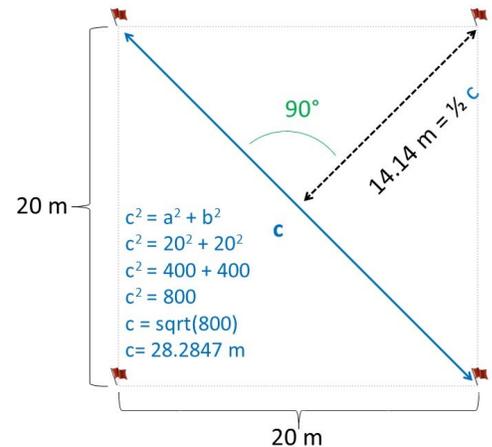# Domin-Krajina[1] (DK) Method

Ecological Site Development Inventory in a 20 m x 20 m Plot

Mark the four corners of a 20 m x 20 m plot using pin flags or flagging

Determine the number of steps that approximate 14.14 meters. Mark the plot center with flagging or equipment. Pace the 14.14 m from the plot center and mark the first corner with a flag. From the plot center pace 14.14 m in the opposite direction and mark the second corner. This should form a straight line between the two flagged corners bisected by the plot center. Stand at the plot center with the first two corners directly to the left and right; pace out 14.14 m to establish the third corner of the plot. Establish the fourth corner in the opposite direction. The flagged corners should be 90° from one another and form a 20 m by 20 m plot.

90°

14.14 m = ½ c

20 m

$c^2 = a^2 + b^2$
$c^2 = 20^2 + 20^2$
$c^2 = 400 + 400$
$c^2 = 800$
$c = sqrt(800)$
$c = 28.2847$ m

c

20 m

Inventory the Plant Species and Assign a Domin-Krajina Class

Take a walking survey of the plot and record all species by species code[2]. Give equal attention to every piece of ground. Record each species encountered within the plot. Once a comprehensive species list has been constructed, independently consider the cover of each species on the plot. Keep in mind both the range of foliar canopy cover and the range of area covered for each class. Assign a DK class to each species.

Determination of a cover class can be based on an ocular estimate of foliar cover or the area occupied by each species. Compare the foliar cover of each species against the "cover_class_examples_dk.pdf" to select a DK class based upon ocular estimates of cover. DK cover classes include only foliar canopy cover; areas within the circumference of a plant canopy that would not intercept a raindrop are not included as cover. Typically only cylindrical cacti have 100% cover within the circumference of their canopies. Many shrub species have very diffuse canopies. Discount the uncovered gaps within plant canopies when estimating foliar cover.

Observers should calibrate DK cover class estimates against line-point intercept and with other experienced observers each field season. Note that line-point intercept's utility for estimating foliar cover in a plot diminishes around 5% cover: cover of annuals and litter can be overestimated and cover of succulents and sparse or patchy perennials can be under-estimated. In cases of low cover, DK can provide superior estimates of plot-level cover to line-point intercept.

To select a cover class using area occupied, imagine all individuals for a species lined up along one side of the plot or grouped together in one corner of the plot (for 400 m[2] plots only). Do not include 'gaps' within each plant's canopy as area covered. Select the cover class that corresponds to the area covered for the species of interest. Compare the selected cover class against the "cover_class_examples _dk.pdf" form to verify the DK class for a species.

It can be difficult to assign a DK class when: (a) two or more species are intermixed such that it is hard to distinguish which one is responsible for what proportion of the canopy cover and (b) in heavily grazed sites where species identification is difficult. Difficulty increases with increasing plant diversity. In such instances use step-point (minimum 100 paces) or line-point intercept[3] to determine cover by species.

The + or – symbol can be recorded following the numerical designation of a DK class when canopy cover is at the high or low end of a class or right on the border.

[1] Shimwell, D.W. 1972. The Description and Classification of Vegetation. University of Washington Press, Seattle. 322pp.

Elzinga, C.L., D.W. Salzer, J.W. Willoughby, and J.P. Gibbs. 2001. Monitoring Plant and Animal Populations. Blackwell Science, Inc., Malden, MA (see page 179).

[2] Refer to the PLANTS database for standardized species codes at http://plants.usda.gov/java/.

[3] Refer to the Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems (Herrick et al. 2009 at http://jornada.nmsu.edu/monit-assess/manuals/monitoring).

State Mapping Modification

Record data for the top three to four dominant persistent perennial species and one or two key perennial species only. Define the key species to record for each state mapping effort. Focus on the state-and-transition model within each ecological site description (ESD) for guidance on determining which key species to record (dominant and indicator species). These may be within the state name, plant community phase name, dynamics described or the list of plants. In general, do not record species that do not obtain dominance in either the reference or one of the alternative states. Annuals or short-lived perennials (e.g., *Enneapogon desvauxii*, *Dasyochloa pulchella*, perennial and annual forbs and annual grasses) typically do not become dominant in MLRAs 35, 38, 39, 41, 42, 70s, and would not be recorded for state mapping traverse data unless long-lived, persistent perennials are absent (an altered or bare state).