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Soil-site relationships of leafy spurge (*Euphorbia esula* L.)

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Attainment 1982-Publications

Research in Progress:

1. Leafy spurge – The status of our knowledge (with comprehensive bibliography).
The proposed sections and authors are:

Distribution and inventory	---	Bjugstad, Noble
Biology of the plant	---	Messersmith
Chemical control	---	Alley
Cultural control	---	Mitich
Biological control	---	Dunn, Harris, Fey
General information	---	Bjugstad, Noble

Sections are complete except for first and last which have been reassigned since Noble's transfer. Bibliography search completed and completion of all sections was scheduled for fall of 1982. Now in typing and should be completed by summer 1983.

2. Inventory and analysis of leafy spurge sites – a feasibility study.

Aerial photos taken and interpretation completed. Data in preparation as a State & Private Forestry report.

3. Determining selection soil-site relationships of leafy spurge (*Euphorbia esula* L.).

The soil-site relationships of leafy spurge (*Euphorbia esula* L.) were investigated near Devils Tower National Monument in northeastern Wyoming. The study investigated soil and site factors to determine which ones were significantly correlated with leafy spurge density and percent foliar cover and to assess their relative importance.

Soil chemical and physical data, as well as site data which included measurements of vegetative cover, percent slope, erosion condition, ecological stage, and percentage of the soil surface occupied by bare soil, litter, rock, pavement, and cryptogams were collected from 26 macroplots which occurred on four range sites.

Results of this study indicated that in northeastern Wyoming both soil and site factors were correlated with leafy spurge vegetative characteristics and could be useful in indicating existing or potential leafy spurge sites.

Soil texture, topographic position percent slope, and available water holding capacity were significant factors in the analysis which can be obtained from most soil surveys. Soil map unit descriptions which include information about the potential of soil series to receive moisture in excess of direct precipitation would be particularly useful in identifying high probability areas of leafy spurge inventory.

Community characteristics such as ecological stage, diversity, and species dominance can be obtained from range site descriptions and vegetative data.

Although not routinely provided by soil survey and range site information, soil chemical data and the condition of the soil surface may add to their usefulness in a leafy spurge inventory.

In conclusion, soil surveys and range site descriptions can be useful tools in stratifying a large geographic area to identify potential or existing leafy spurge populations.