INTEGRATION OF REMOTE SENSING IN A CROP/PEST MODEL USING A GEOGRAPHIC INFORMATION SYSTEM

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ABSTRACT

Grasshopper outbreaks are typical examples of large-scale spatial dynamics that are affected by local conditions. Data concerning these outbreaks are collected annually as point survey data. This point data is interpolated into thematic maps using the analytical and point interpolation techniques within TYDAC Technologies Spatial Analysis System.

Currently, grasshopper population densities for the province of Alberta are derived from a variety of data sets. In the past simple models have enabled an annual forecast of grasshopper distribution (each August 1) from the previous year's grasshopper population, monthly rainfall maps and sunlight hours during the previous August.

The availability of remotely sensed data introduces another potentially data set to augment the analysis of grasshopper distribution. The National Oceanic and Atmospheric Administration provide vegetation indices derived from the Advance Very High Resolution Radiometer (AVHRR). It is anticipated that AVHRR data will be a useful input because it provides large scale coverage for relatively short time periods. This paper will examine the correlation of those vegetation indices with grasshopper population density. Application of the integrated grasshopper and vegetation data to developing a model describing their interrelationship is in progress. This paper will present the preliminary results.