B515 Flora and Soil Properties of Major Plant Communities of Bukgyeogryeolbi Island

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Flora and soil properties of major plant communities of Bukgyeogryeolbi Island were investigated. Total number of plant species was 47 families and 95 species. Vegetation of Bukgyeogryeolbi Island was divided into three types: herbaceous community, *Camella japonica* community and *Celtis sinensis* community. Herbaceous community dominated by *Miscanthus sinensis, Achyranthes japonica, Pueraria thunbergiana, Persicaria senticosa, Leonurus sibiricus. Arisaema ringens* occurred under the canopy of *Camella japonica* community. Soil pH of herbaceous community, *Camella japonica* community and *Celtis sinensis* community was 5.8, 6.0 and 6.5, respectively. Organic matter, total N, available P of soil in the herbaceous community, *Camella japonica* community and *Celtis sinensis* community were 29.2%, 38.3%, 39.8% for organic matter, 16.2, 23.5, 22.0 mg/g for total N, 8.17, 2.85, 3.99 μg/g for available P, respectively. Concentrations of K, Ca and Mg of soil in the herbaceous community, *Camella japonica* community and *Celtis sinensis* community were 0.42, 0.64, 0.81 mg/g for K, 1.66, 3.40, 4.78 mg/g for Ca, 1.35, 1.34, 1.29 mg/g for Mg, respectively.

B516 GPA-Phenodynamics: A Simulation Model for the Population Dynamics and Phenology of *Myzus persicae*

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A model, GPA-Phenodynamics, was developed for the population dynamics and phenology of green peach aphid, *Myzus persicae*, in potato during the summer: the model describes the interaction among the green peach aphid population, its predators, and abiotic factors. Developmental degree-days were used for the time dimension. The model precisely predicted (within two days) when the aphid reached its highest density. A regression analysis between observed and predicted population density showed a slope of 0.952 with a coefficient of determination equal to 0.976. Model output was sensitive to the intrinsic rates of increase for green peach aphid and its predator complex. The number of degree days required for the aphid and its predator complex to appear in potato were described as a uniform random distribution having different means and deviations. The application of a uniform random distribution for the required degree-days successfully described the impacts of variable timings for phenological events on the aphid population dynamics.