

PHENOLOGICAL OBSERVATION SINCE THE DAYS OF LINNÉ IN FINLAND

OSSERVAZIONI FENOLOGICHE IN FINLANDIA DAL TEMPO DI LINNEO

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Abstract

In Finland, the oldest phenological observation series based on voluntary observers starts in the middle of the 1700s. In this paper we focus on a historical long-term dataset as well as on a newer network established for monitoring annual phenological events taking place in the same individual plants. In addition to the work in the field by volun-tarious observers, several phenological monitoring surveys are nowadays carried out by different institutes as a part of Finnish national phenological network. Compilation and documentation of observations on plant phenophases play a key role in working out the rate of global climate change. In this context we present data on the onset of flowering in the rowan (*Sorbus aucuparia*) and the bird cherry (*Prunus padus*) that has become earlier in Finland at the rate of three days / century and five days / century, respectively. Phenological monitoring is nowadays more important than ever especially in boreal regions, where spring temperatures are elevated.

Keywords: Phenology, climate change, rowan, bird cherry

Riassunto

In Finlandia, le più antiche serie storiche di osservazioni fenologiche basate su osservatori volontari iniziano alla metà del 1700. In questo lavoro si pone l'attenzione sia su una lunga serie storica sia su una rete più recente, istituita per monitorare gli eventi fenologici annuali sulle stesse piante. Oltre al lavoro sul campo svolto dagli osservatori volontari, attualmente numerosi rilievi di monitoraggio fenologico sono effettuati da diversi istituti, facenti parte della rete fenologica nazionale finlandese.

La compilazione e la documentazione delle osservazioni sulle fenofasi delle piante giocano un ruolo fondamentale nel calcolare il ritmo del cambiamento climatico globale. In questo contesto, vengono presentati i dati dell'inizio della fioritura del sorbo degli uccellatori (*Sorbus aucuparia*) e del pado (*Prunus padus*), che è diventata più precoce, in Finlandia, al ritmo, rispettivamente, di tre giorni/secolo e cinque giorni/secolo. Il monitoraggio fenologico è al giorno d'oggi più importante che mai, specialmente nelle regioni boreali, dove le temperature primaverili sono elevate.

Parole chiave: fenologia, cambiamento climatico, sorbo degli uccellatori, pado

Introduction

"Years are not brothers" is an old Finnish phrase pointing out seasonal differences between years. Phenology focuses on documenting the onset of phenomena related to the annual phases of life cycles in plants, animals and mushrooms. Phenological field observations are usually considered in connection with concomitant temperature measurements obtained from the meteorological station nearest to the observation sites. Long-term observation series compiled during the run of decades or even centuries rely on the annual field work by voluntary observers. Such valuable datasets are gained in different countries including Finland. The pioneers of phenology hardly could imagine how valuable their observations would be for the research in the future.

The start of phenological observations in Finland dates back to the 1750s, i.e. to the days of the great nature scientist Carolus Linnaeus, later known as Carl von Linné. In a Swedish newspaper of his time called "Lärda tidningar" he suggested that the readers should carry out phenological observations. Four years later after his re-

quest, in 1753 the first Nordic dissertation "Vernatio Arborum" on phenology was published in the University of Uppsala, Sweden. Records from Finland were included and this is why we can say that phenology started simultaneously in Sweden and Finland. Two other publications from the 1700s concerning Finland are noteworthy in this context. They are the dissertation by Justander in 1786 called "Specimen Calendarii Florae et Faunae Åboënsis" ("Calendar for species of Flora and Fauna in Turku (=Åbo)") and a publication by Julin viz., "Anmärkningar om någre Flyttfoglarnas ankomst och örter blomningstid mm. till upplysning af klimatet i Uheåborg" ("Observations on the arrival of some migratory birds and flowering of plants in relation to the climate in Oulu (=Uheåborg)" in 1789. In the latter work phenological observations and meteorological measurements made near and in the city of Oulu were associated. Old Finnish phenological observations from 1750 up to 1845 are indicated in a publication by Moberg (1856). Additional information on later phenological datasets were given by Johansson (1946).