



NAPPO

North American Plant Protection Organization
Organización Norteamericana de Protección a las Plantas

7. Pre-Release Compliance

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Background

- Why is this needed?
- As mention for **3. Biological Control Agent Information** taxonomic experts require “Sufficient specimens, of both sexes ..., in good condition (intact adults, preserved appropriately) for taxonomic study and identification.” in order to validate scientific names. This also

Species of the family Phytoseiidae are ... used in crops to control mite pests, all around the world. *Neoseiulus (=Cydnodromus) californicus* is among the most commonly used Phytoseiidae species in biological control programs This species is distributed world-wide but has never been reported from Australia. On the other hand, specimens morphologically close to *N. californicus* have been assigned to a species called *Neoseiulus wearnei*, only reported from Australia. Investigations based on morphological and molecular comparisons ... showed no significant difference between specimens identified as *N. wearnei* and *N. californicus*. ... genetic distances between these taxa were null, showing that all these specimens belong to the same species. ... we can conclude that *N. californicus* is present in Australia. The information about the biology of *N. californicus* can thus now be applied to the Australian population of this species for biological control purposes.

Information requirements

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Reference specimens

Voucher specimens deposited in natural history collections are the only reliable means to verify the identity of species used in biological studies.

Errors in specimen identification can enter a study in several ways:

- Subsequent recognition of multiple species in a complex of closely related species, or changes in species limits.
- Subsequent recognition of variation in traits of populations that affect morphology, ecology, behaviour or physiology.
- Subsequent recognition of errors or omissions in keys or guides used for identification.
- Misidentification of an organism by a trained researcher inexperienced in the systematics of that taxon (an occasional problem).
- Misidentification of an organism by untrained or poorly trained “consultants” offering contract identifications (a frequent problem).

The Role of Voucher Specimens in Validating Faunistic and Ecological Research

A brief prepared by the
Biological Survey of Canada (Terrestrial Arthropods)

Biological Survey of Canada (Terrestrial Arthropods)
Document series no. 9 (2003)

Specimen labels

The data associated with specimens and recorded on their labels are a permanent record of research that is as important as the specimens themselves.

Labels should provide accurate, unambiguous locality information that includes latitude and longitude.

Label data should be in a format that maximizes the efficiency with which the data can be extracted into databases, data retrieval systems and geographic information systems.

The importance of keeping voucher specimens has increased with renewed interest in biological control and biodiversity studies and the realization that different biotypes of a single species may have quite different biological characteristics (Huber 1998: Journal of Natural History, 32:3, 367-385)

ISBN 0-9689321-0-X

Label Data Standards for Terrestrial Arthropods

A brief prepared by the
Biological Survey of Canada (Terrestrial Arthropods)

Biological Survey of Canada (Terrestrial Arthropods)
Document series No. 8 (2001)

The importance of voucher specimens, with practical guidelines for preserving specimens of the major invertebrate phyla for identification

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Voucher specimens in a broad sense are redefined as all biological specimens having the minimum information of collection locality (ideally specified by latitude, longitude, altitude) and date that are preserved to document biological research, including taxonomic research. The importance of keeping voucher specimens, and, conversely, the consequences of not so doing, are reviewed briefly. The roles of both systematists and non-systematists in cooperating to ensure that vouchers are properly preserved is emphasized. Practical guidelines, with supporting rationale, are given for non-taxonomists on how to preserve members of the major animal phyla—arthropods, molluscs, and helminths, for taxonomic study and as vouchers.

KEYWORDS: Voucher specimens, importance, preservation techniques.

Introduction

Numerous papers address the need for voucher specimens, either directly (Bright, 1978; Yoshimoto, 1978; Francoeur, 1982; Gordh, 1982; Lee *et al.*, 1982; MacInnis, 1983; Gibson, 1984; Knutson, 1984; Kelleher, 1988; Hawksworth and Mound, 1991; Coulson, 1992; Huber, 1992) or indirectly (Robinson, 1975; Danks *et al.*, 1987; Danks, 1988; Coulson *et al.*, 1991; FAO, 1991; LaSalle and Gauld, 1991; Wiggins *et al.*, 1991; Schauf, 1992; Thompson, 1992; Bright, 1993; Noyes, 1994; Hoagland, 1994; Thomas, 1994; Davis, 1995; Whitfield, 1995; Grissell and Schauf, 1997). Several of these papers relate the need for voucher specimens specifically to biological control whereas others relate the need to biodiversity studies and biological research generally. None seem to address specifically the use of voucher specimens to support or defend, contradict or reject trade or phytosanitary restrictions or quarantines imposed by one region or country upon another for political or economic purposes. Yet such proof, in the form of well preserved and documented voucher specimens, may have a significant impact on trade negotiations or restrictions.

This paper is divided into two main sections. The first section summarizes the principal reasons for keeping vouchers and reiterates the need for continued and better communication between taxonomists and non-taxonomists before specimens are submitted for identification or selected and preserved as vouchers. The second section provides practical guidelines, including a list of basic equipment, for fixing and preserving specimens. It is hoped that these guidelines will help quarantine