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## A new species, *Simulium (Nevermannia) berchtesgadense* (Diptera: Simuliidae), and its chromosomes, from the Alps of southeastern Germany

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### Abstract

*Simulium (Nevermannia) berchtesgadense* nov. spec. is described from the Alps of southeastern Germany. The morphology and diagnostic characters for all life stages except the egg are given, and the polytene chromosomes are compared with those of other members of the *Simulium (Nevermannia) vernum* group. The species is chromosomally similar to *Simulium (Nevermannia) cryophilum* cytoform 'A' but differs morphologically in each life stage. Bionomic information and the associated simuliid fauna are presented.

**Key words:** *Simulium (Nevermannia) berchtesgadense*, Simuliidae, new record, new species, black flies, polytene chromosomes

### Introduction

With 128 nominal species, the *Simulium (Nevermannia) vernum* species group is the largest simuliid species group in the world (Adler & Crosskey 2014). Members of the group are chiefly ornithophilic and typically breed in small streams. Given the group's wide distribution, comprising the Holarctic and parts of the Oriental regions, it is not unexpected that at times a new species is found, especially in unexplored watercourses. One of these places where rare or new simuliid species are found in Central Europe is the UNESCO biosphere reserve Berchtesgaden in the northern limestone Alps of southeastern Germany (Seitz & Forster 2004, Seitz & Adler 2009). Thus, we describe a new *Nevermannia* species and provide information on the associated simuliid species.

### Material and methods

In total, 51 larvae and 23 pupae of the new species were collected on 6 sampling dates (Table 1) from a perennial spring in the Weißbach catchment area (47°40'33,4"N, 12°55'15,9"E; river sequence: Frechenbach, Bischofswiesener Ache, Berchtesgadener Ache, Salzach, Inn, Donau).

Larvae and pupae in 2003 and 2012 were collected into ethanol. Subsamples of larvae of the collections of 2013 and 2014 were fixed in three changes of Carnoy's solution (1:3 acetic ethanol). Adults were reared from pupae in April 2013 and 2014. The holotype and one female paratype emerged after 3 days (the other paratypes needed up to 9 days) while held at room temperature on a moist paper towel in a vial. After cuticular tanning of one day, the insects were put into ethanol. Male and female specimens were prepared for microscopic studies and stored in ethanol; the abdominal tips were cleared in cold KOH and transferred into glycerin. After being temporarily air-dried, the pinned holotype was stored in ethanol, as was one female paratype, and the associated pupal exuviae. Genitalia of the holotype were dissected into component parts, temporarily flattened in glycerin under a coverslip, photographed, and stored in a microvial with glycerin; the same applied for the head, the

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