Pictorial key to Nordic *Isotomurus*

(Collembola, Isotomidae)

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With some training our ten Nordic species of the genus *Isotomurus* may be identified by colour pattern alone. However, the species vary considerably and immature specimens with incompletely developed patterns may be impossible to identify. Most species live in wet habitats (ponds, shores of lakes, stream banks) and can often be scooped in quantities from the surface of waters, in particularly during snow melt or after heavy rain. Under such conditions several species may be collected together.

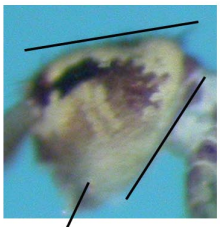
Before trying to identify your specimens, make sure you have an *Isotomurus* and not an *Isotoma* – which may look very much the same. They differ by head shape and distribution of the macrochaetae on abdominal segment 4 (see next page). Also the *Isotomurus* species (apart from *antennalis*) differ from *Isotoma* by presence of long sensorial setae – trichobothria – on abd.2-4 (photo next page). If colour pattern alone is not enough to idenitify the species, additional microscopic characters should be used. Check if your species belongs to Group A or Group B (next page). Reproductive males (genital tractus developed, see next page) may provide significant characters.

A complete description of the species, including synonyms and geographical distribution in the Nordic countries, is found in Fjellberg, A. –*The Collembola of Fennoscandia and Denmark. Part II. Entomobryomorpha and Symphypleona*. Fauna Entomologica Scandinavica vol. 43. Brill Academic Publishers (in press).

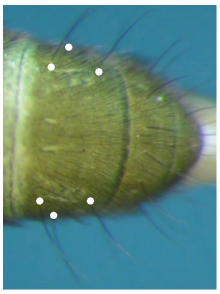
The difference between *Isotomurus* and *Isotoma*

In general appearance the *Isotomurus* are very similar to *Isotoma*, but the more prominent mouth cone and a different arrangement of macrochaetae on abdomonal segment 4 will identify them:

Isotomurus

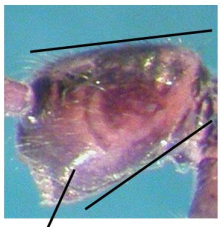


Prominent mouth cone. Head short and broad, Upper and lower profile lines forming a broad angle

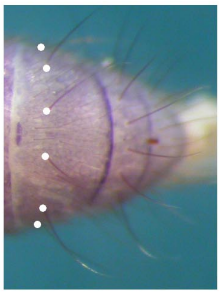


On abd.4 the 3 macrochaetae on each side form a triangle. The upper two set one after the other. The median field is occupied by a pair of trichobothria (long sensory setae, invisible here)

Isotoma

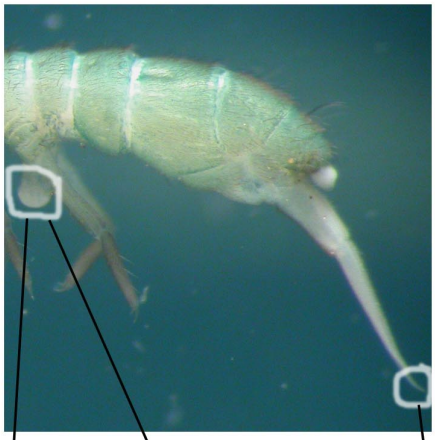


Mouth cone less prominent, head more elongate. Profile lines form a narrow angle.



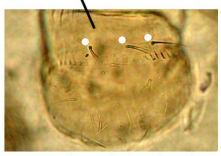
On abd.4 the 3+3 macrochaetae are set in a stright transverse line. No trichobothria in median field

The two groups of *Isotomurus* species:



Group A:
Ventral tube with more than 3 lateral setae on easch side.
Mucro with lateral seta present.
(*balteatus*, *plumosus*, *stuxbergi*)

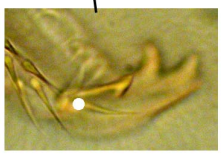
Group B:
Ventral tube with 3 setae on each side.
Mucro without lateral setae.
(palustris, maculatus, unifasciatus, graminis,italicus, fucicola, antennalis)



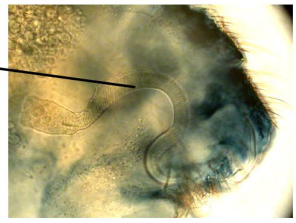
Three lateral setae

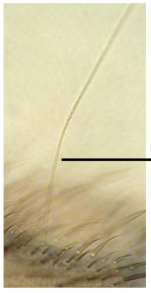
More than 3 lateral setae

Mucro with lateral seta



Genital tractus inside abdomen of a reproductive male





Trichobothrium from abd.4 in an *Isotomurus*

Isotomurus balteatus

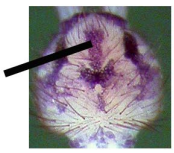
The transversely striped body immediately identifies this species.

Other diagnostic characters are presence of a lateral seta on mucro and more than 2+2 laterodistal setae on ventral tube (characters shared only with plumosus and stuxbergi)

Isotomurus plumosus

When typically coloured the three longitudinal broad bands will identify the species. Bands may become diffuse or poorly developed, particularly in small juveniles. Additional chareacters are presence of lateral seta on mucro and more than 3+3 laterodistal setae on ventral tube (shared only with *balteatus* and *stuxbergi*). Note absence of dark pigment bewteen the eyes (only as a spot behind eyes). The similarly coloured *Isotoma riparia*, which usually has the three body lines dissolved into spots, also has dark pigment between the eyes (see below)

plumosus



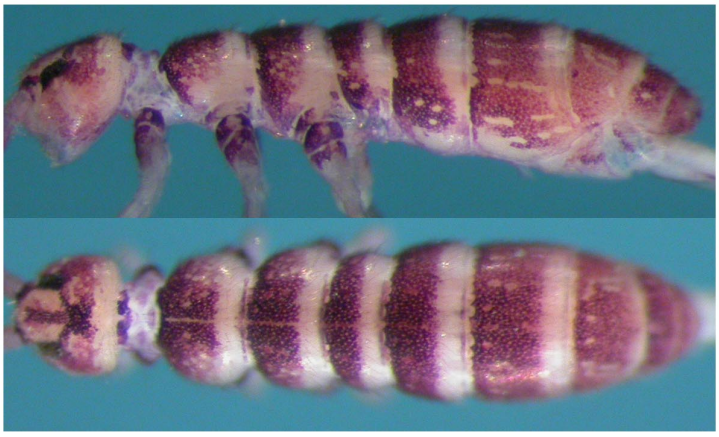
riparia

Isotomurus stuxbergi

The body is more or less uniformly coloured, greenish vith a violet tinge which usually becomes darker on the sides of the body, towards ventral side. May be confused with the green *graminis*, but *stuxbergi* is unique by the tuberculate back side of dens (see page 1) and also differs from *graminis* in having more than 3+3 laterodistal setae on ventral tube and presence of a lateral seta on mucro. Moreover, *stuxbergi* lives along the shores of streams and lakes while *graminis* prefers damp meadows and grass fields (lawns, golf courses, disturbed habitats).

Group B

Ventral tube with 3 lateral setae on each side.
Mucro without lateral seta



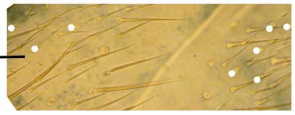
Isotomurus antennalis

In dark specimens - like this one - the pigment covers most of the dorsal surface of the tergites, leaving broad pale intersegmental bands. In juveniles and less pigmented specimens the dark colour is confined to the mid section of the terites, in particular on thorax and anterior abdomen. Unique characters for the species are total absence of trichobothria and macrochaetae on abdomen .

Uncommon species in damp moss on cliffs and along rock pools near seashores.

Isotomurus fucicola

Characterized by uniform reddish violet colour without dark stripes or patches. Abdomen with very long ciliate macrochaetae



Reproductive males with spine-like setae both on abd.3 and abd.4

The species is frequent in moist debris along stream banks and lakes.

Isotomurus italicus

Usually paler than *fucicola*, more brownish grey. Abdominal macrochaetae shorter, completely smooth.

Reproductive males with spine-like setae only on abd.4

An unique character of *italicus* is the presence of 1+1 ventroapical setae on manubrium in the 1.instar juvenile. In all the other Nordic *Isotomurus* these setae are absent in the 1.instar.

The species is common in moist meadows, farmland, gardens and other disturbed habiitats.

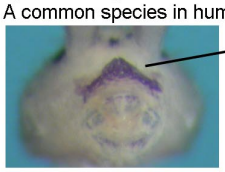
Isotomurus graminis

The uniform greenish colour (paler or darker) is characteristic. The frontoclypeal field is at most diffusely darker than rest of the head. Reproductive males have spine-like setae laterally on abd.3-4 (position indicated at left).

A common species in humid grasslands, often in gardens and golf courses (disturbed habitats)

Isotomurus unifasciatus

Typically with dark median line and diffuse lateral patches Very variable, often uniformly brown or green without dors dark line. Unlike *graminis* the frontoclypeal area always sharply bluish. May become very similar to *palustris*, but t lateral pigmentation is generally uniformly distributed fron ventral to dorsal side on abdomen. Males with abd.3-4 spines as in *graminis*.
A common species in humid woodland (ponds, bogs).



Isotomurus palustris

When typically coloured, *palustris* is easily recognized by the almost continuous middorsal line and the variable dorsolateral patches. The dark pigment on legs and sides of abdomen does not extend to the dorsal side and is isolated from the dorsolateral patches - unlike the above *unifasciatus*. Reproductive males do not have lateral spines on abd.3-4 - only normal setae in the corresponding positions - which is a sharp diagnostic character separating *palustris* and *unifasciatus* in dubious cases. From *maculatus* it differs by having middorsal dark pigment on all abdominal tergites.

Isotomurus maculatus

The spotted pattern is characteristic, leaving an unpigmented median field in anterior parts on the abdominal tergites. No modified setae on abd.3-4 in males.

An uncommon species in humid disturbed habitats in city parks and gardens. Southern distribution.