CHECKLIST OF THE TRICHOPTERA OF NICARAGUA

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ABSTRACT

The total number of caddisfly species in Nicaragua is 176, in 13 Families and 43 Genera. The number of caddisfly species recorded for Nicaragua has more than tripled since the first checklist in 1988, from 54 to 176 and almost doubled since 1999 despite the limited number of collections undertaken in the country in the last 18 years. This list adds 56 new country records.

INTRODUCTION

Nicaragua has an area of 129,494 sq km and is the largest Central America country, and after Belize, the nation with the lowest population density, estimated at 5.5 million as of July 2006 (CIA World Fact Book, 2007). The country has three major geographical regions: The Pacific Lowlands, the Central Highlands, and the Caribbean Lowlands. Most of the population is concentrated in the Pacific Lowlands and has the most degraded ecosystem and environmental problems. The Central Highlands are mountainous and much of the natural areas of wet tropical forest are well preserved. The Caribbean Lowlands are hot and humid and in general, the northern area is characterized by pine and palm savannas, while the southern region is characterized by wet tropical forests. This area is sparsely populated and better preserved however, it is the most difficult to access.

Georg Ulmer described the first Trichoptera from Nicaragua, Chimarra (Curgia) banksi (Ulmer) 1907 from Chinandega. Oliver S. Flint, Jr. went on to described the second Trichoptera from Nicaragua, Smicridea (S.) matagalpa Flint 1974, based on material he collected in 1967. In 1988, Maes and Flint recorded 54 species of caddisflies for the country. By 1999, the total number of caddisflies species recorded from Nicaragua, based on distribution records found in the Catalog of Neotropical Trichoptera, was 66 species (Flint et al. 1999). In 1999, Maes published an updated list of Trichoptera found in Nicaragua in his three volume compendium of the Insects of Nicaragua, and added 42 new records, bringing the total to 108 species. Since then, 12 new
species have been described that are endemic to, or found in Nicaragua. The total number of 120 species greatly contrasts the more than 500 species of caddisflies recorded in neighboring Costa Rica. The low number of caddisflies recorded in Nicaragua, to date, is due to the relative paucity of collections undertaken in Nicaragua rather than to the country’s geography or lack of habitat diversity. This checklist is a compilation of records of Trichoptera found in Nicaragua from the literature and from material collected by Maes and Chamorro during several joint and separate expeditions.

Between the years of 1993 and 1997 Maes and colleagues (B. Hernandez, Novelo, F. Collantes, S. Hue) made several collections. In the Central Highlands collections were made in the Department of Jinotega: Peñas Blancas (13.28, -85.55, 1300 m), Cerro Mazú (14.55, -85.12, 220 m), and Cerro Kilambé 13.57, -85.72, 1300 m); In the Department of Matagalpa: Selva Negra (12.99, -85.91, 1300 m) and El Coyolar (13.12, -85.83); And in the Department of Madriz: San José de Cusmapa. In the Caribbean Lowlands, what was formerly known as the Department of Zelaya, (present day RAAN, North Atlantic Autonomous Region and RAAS, South Atlantic Autonomous Region), collections were made in the western part of the RAAN: Cerro Saslaya (13.73, -85.02, 700 m), Río Waspuk, Rápido Waula Kumbas (14.43, -84.6, 75 m), Las Américas (13.12, -84.52, 230 m), and Río Las Latas (14.07, -88.55?, 220 m); Collections in the Pacific Lowlands were fewer; In the department of Leon: between La Leona and Izapa.

On July and August of 2000 Chamorro and colleagues (J. Lacayo, E. Dobbins, A. Christiansen, M. Ruiz, D. Martinez, A. Lopez) and on July of 2001 Chamorro and Maes, made several collections. In the Central Highlands in the Department of Jinotega: Area Protegida Datanlí-El Diablo, finca Santa Maura (13.17, -85.86, 1050 m) and Cerro Kilambé; In the Department of Matagalpa: Selva Negra; and in the Department of Estelí: Area Protegida Miraflor (13.22, -86.26, 1230 m). In the Pacific Lowlands collections were made in the Department of Granada: Isla Zapatera (11.76, -85.85, 42 m) and Reserva Silvestre Privada Domitila (11.70, -85.95, 59 m); in the Department of Rivas; Río Las Lajas (11.36, -85.80); In the Department of Carazo: Road towards Pochomil/Montelimar (11.92, -86.46, 185 m). In the southern part of the Caribbean Lowlands in the Department of Río San Juan: Refugio Bartola, Río Bartola/Río San Juan.

The preliminary results presented herein are based on species level identification of more than 90 % of the material collected. We hope this checklist, although incomplete, will shed light
on the diversity of the fauna and on patterns of endemism and distribution, as well as serve as a basis for future faunistic, taxonomic and/or ecological work.

RESULTS

To date, 176 species of Trichoptera are recorded from Nicaragua in 13 Families and 43 Genera. Of these 176 species, 12 have recently been described as new to science, as mentioned above. Recently described species include *Cyrellus zapateriensis* Chamorro-Lacayo 2003 from Isla Zapatera in Lake Nicaragua, off the coast of Granada, *Polyplectropus maesi* Chamorro-Lacayo 2003 and *Polyplectropus nicaraguensis* Chamorro-Lacayo 2003 from Jinotega, and *Cernotina riosanjuanensis* Chamorro-Lacayo 2003 from Rio San Juan. Also, *Banyallarga (Histricoverpa) nica* Prather 2004 from Jinotega, *Banyallarga (Histricoverpa) sylvana* Prather 2004 from Jinotega and Region Autonoma del Atlantico Norte (RAAN), formerly Zelaya in part and also known from Costa Rica, also *Triaenodes kilambe* Holzenthal & Andersen 2004 and *Triaenodes nicaraguensis* Holzenthal & Andersen 2004 from Jinotega, and more recently *Protoptila cristula* Holzenthal & Blahnik 2006.

DISCUSSION

The number of caddisfly species recorded for Nicaragua has more than tripled since the first checklist in 1988, from 54 to 176 despite the limited number of collections undertaken in the country in the last 18 years. In addition, 20 species have been identified as new species and await description and 7 were identified as near another species and await comparison to types. Of some of the more notable new species to be described is a new species of *Diplectrona* collected in Jinotega. This signifies the southernmost extension of the genus. Additionally, two new species of *Leuchotrichia* have been identified, one being close to *L. sarita*, but with modified antennae and also collected in Jinotega. New or near species have also been identified in the following genera: *Mexitrichia* (1 species), *Helicopsyche* (4), *Smicridea* (3), *Flintiella* (1), *Neotrichia* (5), *Ochrotrichia* (2), *Oecetis* (4), *Chimarra (Curgia)* (1), *Wormaldia* (2), *Machairocentron* (1). Thus, the total number is sure to increase to at least 203 species.

Given its diverse geography and the mostly intact and rarely collected natural areas of the Central Highlands and Caribbean Lowlands, the total number of caddisfly species will continue to increase. New and endemic species continue to be collected in Nicaragua, despite an extensive
caddisfly survey in neighboring Costa Rica. This exemplifies the importance of inventorying entire geographical regions, and not individual nations, especially those considered to be biodiversity hotspots, as is Mesoamerica (Myers et al. 2000). Nicaragua is located in the middle of the land bridge connecting North and South America, thus reflects faunistic affinities with both land masses. Additional studies will reveal interesting patterns of distribution, such as that of the genus *Diplectrona*.

**ACKNOWLEDGEMENTS**

We would like to thank Dr. Oliver S. Flint Jr., Emeritus Scientist, National Museum of Natural History, Smithsonian Institution for collecting and lending us material from Nicaragua. The senior author received funding from the Bell Museum of Natural History’s Dayton-Wilkie Natural History Funds, The Office of International Programs, and the Graduate School at the University of Minnesota and is very appreciative of their support.

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Myers, N., R. Mittermeier, C. Mittermeier, G. da Fonseca, and J. Kent. 2000. Biodiversity hot-


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| *Phylloicus aeneus* (Hagen) 1861 |
| *Phylloicus elegans* Hogue & Denning 1983 |

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### Ecnomidae (2)

| *Austrotinodes doublesi* Muñoz & Holzenthal 1993 |
| *Austrotinodes panamensis* Flint 1973 |

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### Glossosomatidae (12)

| *Culoptila saltena* Mosely 1954 |
| *Mexitrichia florica* Flint 1974 |
| *Mexitrichia leroda* Mosely 1937 |
| *Mexitrichia meralda* Mosely 1954 |
| *Protoptila bicornuta* Flint 1963 |
| *Protoptila choluteca* Flint 1974 |
| *Protoptila cristula* Holzenthal & Blahnik 2006 |
| *Protoptila ixtala* Mosely 1937 |
| *Protoptila resolda* Mosely 1937 |
| *Protoptila rota* Mosely 1937 |
| *Protoptila salta* Mosely 1937 |
| *Protoptila tojana* Mosely 1954 |
| *Protoptila ixtala* Holzenthal and Blahnik 2006 |

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### Helicopsychidae (7)

| *Helicopsyche borealis* (Hagen) 1861 |
| *Helicopsyche dampfi* Ross 1956 |
| *Helicopsyche incisa* Ross 1956 |
| *Helicopsyche minima* Siebold 1856 |
| *Helicopsyche piroa* Ross 1944 |
| *Helicopsyche planata* Ross 1956 |

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Helicopsyche vergelana Ross 1956

Hydobiosidae (7)
Atopsyche (Atopsyche) cordoba Demning 1968
Atopsyche (Atopsyche) dampfi Ross & King 1952
Atopsyche (Atopsyche) erigia Ross 1947
Atopsyche (Atopsyche) huenga Flint 1974
Atopsyche (Atopsyche) implexa (Navás) 1924
Atopsyche (Atopsyra) japoda Ross & King 1952
Atopsyche (Atopsyra) majada Ross 1947

Hydropsychidae (27)
Centromacronema auripenne (Rambur) 1852

Diplectrona sp.

Leptonema acutum Mosely 1933
Leptonema albovirens (Walker) 1852
Leptonema asclepium Flint, McAlpine & Ross 1987
Leptonema crassum Ulmer 1905
Leptonema dyeri Flint, McAlpine & Ross 1987
Leptonema forficulum Mosely 1933
Leptonema hamuli Flint, McAlpine & Ross 1987
Leptonema simulans mayanum Flint, McAlpine & Ross 1987

Macronema burmeisteri Banks 1924
Macronema variipenne Flint & Bueno 1979

Plectropsyche sp.

Smicridea (Smicridea) bivittata (Hagen) 1861
Smicridea (Smicridea) cholta Flint 1974
Smicridea (Smicridea) gemina Blahnik 1995
Smicridea (Smicridea) gomphotheria Blahnik 1995
Smicridea (Smicridea) hybrida Blahnik 1995
Smicridea (Rhyacophylax) inarmata Flint 1974
Smicridea (Smicridea) matagalpa Flint 1974
Smicridea (Smicridea) mirama Flint & Denning 1989
Smicridea (Rhyacophylax) marina McLachlan 1871
Smicridea (Rhyacophylax) radula Flint 1974
Smicridea (Rhyacophylax) signata (Banks) 1903
Smicridea (Smicridea) ulva Flint 1974
Smicridea (Smicridea) varia (Banks) 1913

Synoestropsis punctipennis Ulmer 1905

Hydroptilidae (35)

Anchitrichia spangleri Flint 1970

Costatrichia bipartita Flint 1970
Costatrichia iodora Mosely 1937
Costatrichia simplex Flint 1970
Flintiella sp.

Hydroptila ajax Ross 1938
Hydroptila denza Ross 1948
Hydroptila grenadensis Flint 1968
Hydroptila icona Mosely 1937
Hydroptila meralda Mosely 1937
Hydroptila mexicana Mosely 1937
Hydroptila misolha Bueno 1984
Hydroptila paradenza Harris & Holzenthal 1999
Hydroptila paschica Mosely 1937
Hydroptila paschica Flint 1967

Leucotrichia sarita Ross 1944

Mayatrichia ayama Mosely 1937
Mayatrichia rualda Mosely 1937
Metrichia penicillata Flint 1972

Neotrichia esmalda (Mosely) 1937  Maes 1999  AN, JI, LE
Neotrichia hiaspa (Mosely) 1937  Maes 1999  AN
Neotrichia xicana (Mosely) 1937

Ochrotrichia panamensis Flint 1972  JI
Ochrotrichia (Ochrotrichia) tagala Flint 1972  Flint 1972, Maes & Flint 1988, Maes 1999  MT

Orthotrichia aegerfasciella (Chambers) 1873  Maes 1999  CA, SJ

Oxyethira arizonica Ross 1948  Maes 1999  CA
Oxyethira (Loxotrichia) azteca (Mosely) 1937  Maes 1999  LE
Oxyethira (Loxotrichia) glasa (Ross) 1941  Maes 1999  AN
Oxyethira (Tanytrichia) hilosa Holzenthal & Harris 1991  Maes 1999  LE
Oxyethira simulatrix simulatrix Flint 1968  Maes 1999  LE
Oxyethira (Loxotrichia) tica Holzenthal & Harris 1992

Rhyacopsyche mexicana (Flint) 1967  Maes 1999  AN

Zumatichia echinata Flint 1967  Maes 1999  AN
Zumatichia palmara Flint 1970

Lepidostomatidae (1)
Lepidostoma steinhauseri Flint & Bueno 1977  JI

Leptoceridae (14)

Nectopsyche dorsalis (Banks) 1901  Maes & Flint 1988, Maes 1999  AN, MT, NS

Nectopsyche pavida (Hagen) 1861  Maes & Flint 1988, Maes 1999  CO, MT
Nectopsyche spiloma (Ross) 1944  Flint and Reyes 1991, Aguila 1992
Nectopsyche tuanis Holzenthal 1995  Maes 1999  AN

Oecetis avara (Banks) 1895  Maes & Flint 1988, Maes 1999  AN, CO, CA, ES, GR, JI, LE

Oecetis inconspicua (Walker) 1852  Maes & Flint 1988, Maes 1999  CA, GR, LE, AN, MS

Oecetis punctipennis (Ulmer) 1905  Maes & Flint 1988, Maes 1999  AN
Triaenodes anomalus  Flint 1967
Triaenodes clauseni  Holzenthal & Andersen 2004
Triaenodes kilambe  Holzenthal & Andersen 2004
Triaenodes morai  Holzenthal & Andersen 2004
Triaenodes nicaraguensis  Holzenthal & Andersen 2004

Triplectides flintorum  Holzenthal 1989

Odontoceridae (2)
Marilia fasiculata  Banks 1913
Marilia flexuosa  Ulmer 1905

Philopotamidae (36)
Chimarra (Chimarra) acuta  Ross 1959
Chimarra (Chimarra) adelphe  Blahnik 1983
Chimarra (Chimarra) amica  Blahnik & Holzenthal 1992
Chimarra (Chimarra) angustipennis (Banks) 1903
Chimarra (Curgia) aureopunctata  Flint 1967
Chimarra (Curgia) banksi (Ulmer) 1907
Chimarra (Chimarra) bicolor (Banks) 1901
Chimarra (Curgia) barrettae (Banks) 1900
Chimarra (Chimarra) caribea  Flint 1968
Chimarra (Curgia) centralis  Ross 1959
Chimarra (Chimarra) dentosa  Ross 1944
Chimarra (Chimarra) duckworthi  Flint 1967
Chimarra (Chimarra) elia  Ross 1944
Chimarra (Chimarra) embia  Ross 1959
Chimarra (Chimarra) emima  Ross 1959
Chimarra (Chimarra) flinti  Bueno 1985
Chimarra (Chimarra) gibba  Blahnik 1998
Chimarra (Chimarra) guatemalensis  Blahnik 1998
Chimarra (Curgia) laguna Ross 1951
Chimarra (Chimarra) lata  Blahnik & Holzenthal 1992
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Chimarra (Curgia) pablito  Flint
Chimarra (Chimarra) peineta  Blahnik & Holzenthal 1992
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Chimarra (Chimarra) picea (Navás) 1924
Chimarra (Chimarra) pollex Blahnik & Holzenthal 1992
Chimarra (Chimarra) ridleyi (Denning) 1941
Chimarra (Chimarra) setosa Ross 1959
Chimarra (Chimarra) solisi Blahnik & Holzenthal 1992
Chimarra (Otarrha) rosii Bueno 1985
Chimarra (Curgia) spatulata Ross 1959
Chimarra (Chimarra) villalobosi Bueno 1985

Wormaldia dampfi Ross & King, in Ross 1956
Wormaldia matagalpa Flint 1995
Wormaldia planae Ross & King, in Ross 1956

Polycentropodidae (24)
Cernotina astera Ross 1941
Cernotina calcea Ross 1938
Cernotina pallida (Banks) 1904
Cernotina riosanjuanensis Chamorro-Lacayo 2003
Cernotina taeniata Ross 1951
Cernotina uncifera Ross 1951

Cyrrnellus fraternus (Banks) 1905
Cyrrnellus zapateriensis Chamorro-Lacayo 2003

Polycentropus altmani Yamamoto 1961
Polycentropus fortispinus Holzenthal & Hamilton 1988
Polycentropus guatemalensis Flint 1967
Polycentropus hamiltoni Chamorro-Lacayo 2003
Polycentropus holzenthalii Bueno & Hamilton 1986
Polycentropus mayanus Flint 1981
Polycentropus zanclus Flint 1981

Polyplectropus bravoe Bueno 1990
Polyplectropus charlesi (Ross) 1941
Polyplectropus denticulus Bueno 1990
Polyplectropus laminatus (Yamamoto) 1967
Polyplectropus maesi Chamorro-Lacayo 2003
Polyplectropus mignonae Bueno 1990
*Polyplectropus nicaraguensis* Chamorro-Lacayo 2003

*Polyplectropus santiago* (Ross) 1947

*Polyplectropus yolandae* Chamorro-Lacayo & Holzenthal 2004

**Xiphocentronidae** (3)

*Cnодocentron* (*Caenocentron*) *lausus* Schmid 1982

*Machairocentron* sp.

*Xiphocentron* sp.

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AN – Region Autonoma del Atlantico Norte (RAAN)

BO – Boaco

CA – Carazo

CI – Chinandega

CO – Chontales

ES – Esteli

GR – Granada

JI – Jinotega

LE – León

MD – Madriz

MS – Masaya

MT – Matagalpa

NS – Nueva Segovia

RI – Rivas

SJ – Rio San Juan