

A photograph of a vibrant forest stream. The water is clear and flows over moss-covered rocks, creating a small waterfall on the right side. The surrounding forest is dense with green foliage and moss, creating a rich, natural setting.

Northwest Standard Taxonomic Effort

**Amy Puls (PNAMP/USGS), Bob Wisseman (ABA), John Pfeiffer (EcoAnalysts),
Sean Sullivan (Rithron), Sue Salter (Cordillera Consulting)**

Northwest Biological Assessment Workgroup Meeting

Astoria, OR

November 5, 2013



pacific northwest aquatic
monitoring partnership

PNAMP provides a forum to enhance the capacity of multiple entities to collaborate to produce an effective and comprehensive network of aquatic monitoring programs in the Pacific Northwest based on sound science designed to inform public policy and resource management decisions.



pacific northwest aquatic monitoring partnership

20 Signatory Partners form the steering committee
4 full-time staff
Everyone is welcome to participate



ACOE
BLM
BPA
CDFW
Colville Tribes
CRITFC
EPA
IDFG
NOAA
NWIFC

NPCC
OWEB
PSMFC
USBR
USFS
USGS
WDFW
WA ECY
WA GSRO
WA RCO





Upcoming Events **Past PNAMP Events**

- Habitat Status and Trends Monitoring in the LCR - Stormwater Workshop (Feb 04, 2013)
- Annual Stream Restoration Symposium (Feb 05, 2013 - Feb 07, 2013)
- Using Acoustic Tags to Track Fish (Feb 07, 2013 - Feb 08, 2013)
- Annual Eastern Washington / North Idaho Regional Lakes Conference (Feb 08, 2013)

[See more events.](#)

PNAMP Tools

Monitoring Methods

Visit [MonitoringMethods.org](#) to document methods and protocols, to find others' content, or to discuss a topic on the Community Forum. This tool is intended to support documentation and to promote information exchange and collaboration between regional monitoring practitioners.

Salmon Monitoring Advisor

Visit [SalmonMonitoringAdvisor.org](#) to find advice and step-by-step guidelines designed to help practitioners design, implement, and analyze results from monitoring programs. Now hosted by PNAMP.

In 2012, PNAMP will launch a new central location with access to these and other new resources. Check back here for updates.

Announcements

General **Jobs**

- Sediment Symposium: Quantifying In-Stream Sediment and Biotic Responses
- RFQ: Status and Trends Monitoring For Watershed Health and Salmon Recovery in Washington State for the Period 2013-2016
- Nominations are open for WA-BC AFS Riparian Habitat Award
- Opportunity to Provide Feedback on OWEB's Long-Term Investment Strategy for Conservation
- StreamNet Newsletter: Issue #14
- Deadline to Apply for the GRAPS Scholarships is Dec 31st

[See more announcements.](#)

Projects
Find out about ongoing and completed PNAMP projects



W Simmonds / life.html.gov

1 2 3 4 5 6

About PNAMP

PNAMP is a forum for the community of aquatic monitoring practitioners. PNAMP consists of federal, tribal, and state partners; other interested parties; and coordinating staff.

- Find out who we are and what we do.
- Learn how to get involved, and
- Access events and documents related to monitoring.

Featured Partner Projects

Status of the Resources Project



Don't see your project listed?
Contact [Jacque Schell](#) to have it added.

ONGOING PROJECTS

- Columbia River Basin Population Crosswalk Geodatabase and Online Interactive Mapping Application
- Coordinated Assessments for Salmon and Steelhead
- Data Management Leadership Team
- Data Steward Community of Practice
- Effectiveness Monitoring Coordination & Assessment
- Habitat Data Sharing
- Integrated Status and Trends Monitoring (ISTM) Demonstration Project
- Intensively Monitored Watersheds (IMWs) Project
- ISTM Fish Monitoring Component
- ISTM Habitat Monitoring Component
- ISTM Master Sample Component
- Metadata Builder
- Methods Review
- Monitoring Methods Project
- Monitoring Sample Designer (GRTS design support)
- Monitoring Site Manager
- MonitoringResources.org
- Northwest Standard Taxonomic Effort
- Regional Metadata Guidance Project
- Remote Sensing Forum
- Salmon Monitoring Advisor

Northwest Standard Taxonomic Effort (NWSTE)



WHY

To improve macroinvertebrate data sharing across the Pacific Northwest

HOW

Standardized taxonomic nomenclature and resolution to use when identifying macroinvertebrates



2012 NBAW

The monitoring agency perspective
(Jo Wilhelm, King Co. WA)

The taxonomic labs perspective
(Sean Sullivan, Rhithron)

Lessons learned from SAFIT
(Joe Slusark, Brady Richards)

Integration with national efforts
(Scott Grotheer, National WQ Lab/USGS)



Included/excluded organisms

- STE provides guidance on what taxa to include or exclude from benthic data sets.
- Terrestrial invertebrates, water surface taxa, eggs, empty shells or cases are excluded entirely, or can be incorporated as incidental records not for metric calculations.



PNAMP STE Levels

STE1: The coarsest taxonomic level – intended for rapid assessments and citizen or school group monitoring projects.

STE2: The lowest practical (and cost effective) level - this is the target level for harmonizing benthic biomonitoring data sets across the region for comparison.

STE3: The finest taxonomic level - intended for project specific objectives and faunistic inventory.



PNAMP STE 2 compared to the SAFIT STE 2

- General agreement on widespread, common, insect taxa
- Coarser level for some groups where return on investment is low, e.g. Acari (mites)
- Finer level for some groups where ROI is high, e.g. *Epeorus* species and groups



PNAMP Accepts

Widely recognized species groups

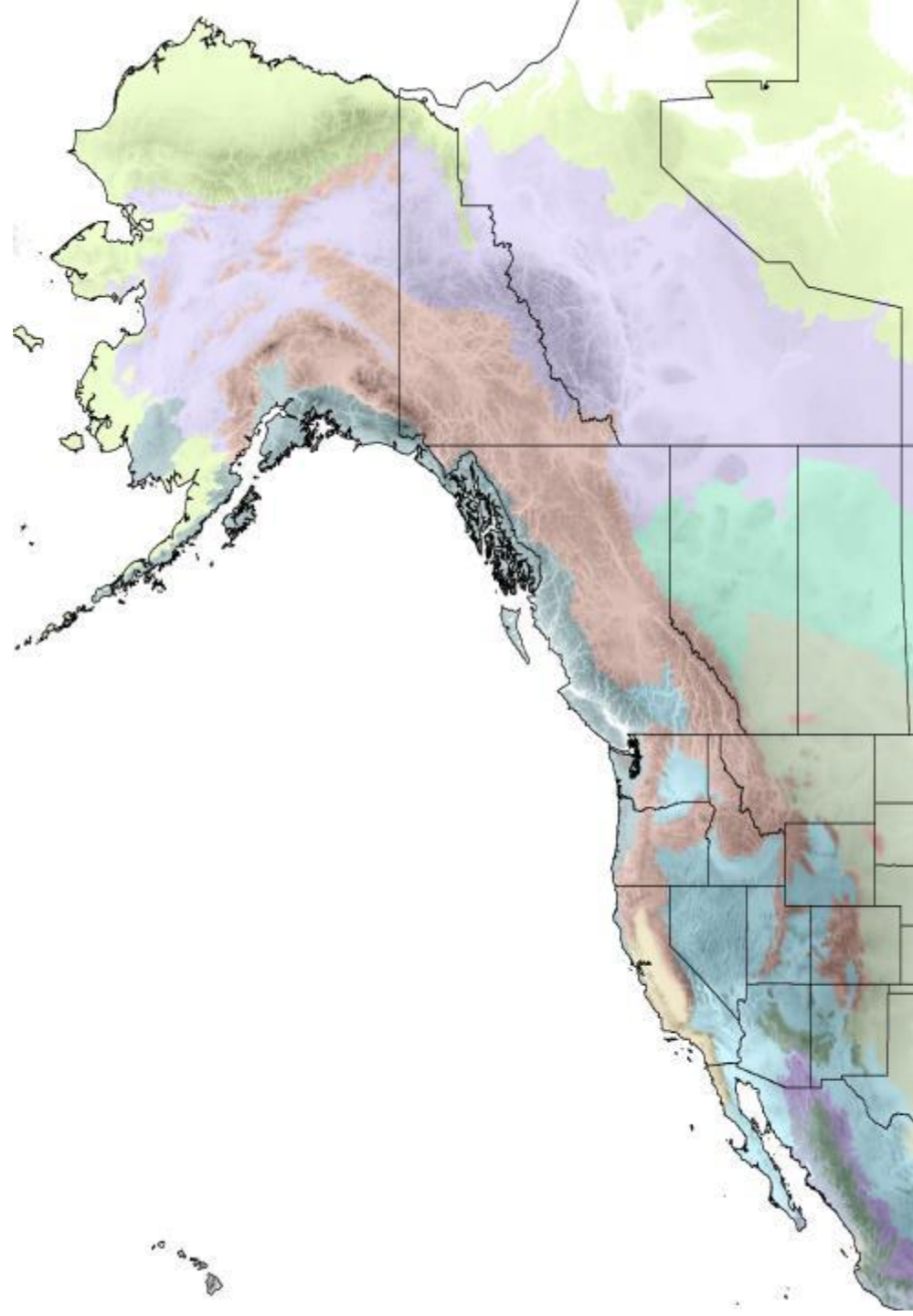
e.g. *Epeorus grandis* group

Provisional taxa

e.g. *Clinocerinae* unknown genus A

Slash taxa

e.g. *Chelifera/Metachela*



Geographic Extent of STE

ID, OR, WA &
MT west of the
continental divide

Lists will eventually
include all western
North American taxa



Habitats covered

- STE addresses primarily benthic biomonitoring samples from streams and rivers.
- Other sample types may be addressed at a later date, e.g. drift, fish diet, qualitative multi-habitat samples.



Habitats not initially covered

- Lentic: lakes, ponds, wetlands, etc.
- Springs
- Other freshwater habitats

STE guidance on some of these habitat types may be added at a later date.

Final Identification	Taxonomic authority	ITIS TSN	Common name	Status	PINAM			Literature	Number of North American species	Distribution	Comments	Taxonomic Hierarchy		
					STE 1	STE 2	STE 3					Phylum	Subphylum	Class
Trichoptera		115095	caddisflies	valid	D1	D1	D1	Wiggins 1996			the occasional specimen that can't be identified to family should be entered as Trichoptera	Arthropoda	Hexapoda	Insecta
Apataniidae	Wallengren, 1896	598182	portable-case makers	valid	D1	D1	D1	Wiggins 1996	33		identify to genus, or species for genera monotypic in western North America whenever possible	Arthropoda	Hexapoda	Insecta
Alomyia	Banks, 1916	116438	portable-case makers	valid	yes	yes	yes	Wiggins 1996	13		primarily subalpine and alpine springs and seeps, larvae cannot be identified to species	Arthropoda	Hexapoda	Insecta
Alomyia imania	Matynov, 1935	116381	portable-case makers	synonym							synonym of Alomyia	Arthropoda	Hexapoda	Insecta
Alomyia acanthis	(Ross, 1950)	116451	portable-case makers							OR WA	subalpine & alpine small streams and springs in the Cascades	Arthropoda	Hexapoda	Insecta
Alomyia bifosa	(Ross, 1950)	116453	portable-case makers							AB BC MT WY	mid and northern Rockies and coastal ranges in BC, high elevation, springs and small streams	Arthropoda	Hexapoda	Insecta
Alomyia cascada	(Ross, 1950)	116441	portable-case makers							AB BC MT OR WA	Cascades & northern Rockies, high elevation springs and small streams	Arthropoda	Hexapoda	Insecta
Alomyia chama	(Denning, 1953)	116443	portable-case makers							CO WY	Snowy Range Mountains, Albany County, high elevation	Arthropoda	Hexapoda	Insecta
Alomyia columbiae	(Schmid, 1968)	604634	portable-case makers							BC CA OR WA	Cascades & coastal ranges, maritime, mid to high elevation, springs and small cold streams	Arthropoda	Hexapoda	Insecta
Alomyia gnathos	(Ross, 1950)	116445	portable-case makers							CO UT	southern Rockies	Arthropoda	Hexapoda	Insecta
Alomyia hector	(Simms, 1971)	604637	portable-case makers							AB	northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Alomyia picoides	(Ross, 1950)	116447	portable-case makers							AK BC WA?	coastal ranges	Arthropoda	Hexapoda	Insecta
Alomyia rinoa	(Milne, 1935)	116449	portable-case makers							NV	Reno area in Sierras	Arthropoda	Hexapoda	Insecta
Alomyia scotti	(Wiggins, 1973)	604639	portable-case makers							OR (Mount Hood)	this species has "horns" on the head, but may not be the only species with horns	Arthropoda	Hexapoda	Insecta
Alomyia thomasi	(Simms, 1977)	604641	portable-case makers							AB	northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Alomyia tripunctata	(Banks, 1900)	116439	portable-case makers							AB AK BC CO MT WA WY	Coastal ranges, Rockies and Interior ranges, high elevation	Arthropoda	Hexapoda	Insecta
Alomyia new species	Eman unpublished	none	portable-case makers							CA	Nevada County, Sagehen Creek basin, Sierras	Arthropoda	Hexapoda	Insecta
Apatania	Kolenati, 1848	115935	portable-case makers	valid	yes	yes	yes	Wiggins 1996	17+		generally higher elevation, cool-cold montane streams	Arthropoda	Hexapoda	Insecta
Apatania radama	Hagen, 1864	598478	portable-case makers	synonym				Ross 1947			North American species transferred to Apatania	Arthropoda	Hexapoda	Insecta
Apatania alberta	Niemö, 1971	604490	portable-case makers							AB BC ID MT	northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania arizona	Wiggins, 1973	115942	portable-case makers							AZ	spring streams at higher elevations in AZ	Arthropoda	Hexapoda	Insecta
Apatania barni	Smith, 1969	604495	portable-case makers							ID MT	northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania charica	(Denning, 1954)	604503	portable-case makers							CA? ID MT OR UT	northern Rockies, interior ranges OR, doubtful records from CA	Arthropoda	Hexapoda	Insecta
Apatania comosa	(Denning, 1959)	115544	portable-case makers							ID MT UT	northern Rockies and interior ranges in UT	Arthropoda	Hexapoda	Insecta

Excel Spreadsheet Format

Major taxonomic groups on separate spreadsheets for now

SAFIT moving to database

USGS uses Biodata database

Final identification	Taxonomic authority	ITIS TSN	Common name	Status	PINAM			Identification Literature	Number of North American species	Distribution	Comments	Taxonomic Hierarchy		
					STE 1	STE 2	STE 3					Phylum	Subphylum	Class
Trichoptera		115095	caddisflies	valid	Di	Di	Di	Wiggins 1996			the occasional specimen that can't be identified to family should be entered as Trichoptera	Arthropoda	Hexapoda	Insecta
Apataniidae	Wialengren, 1896	598182	portable-case makers	valid	Di	Di	Di	Wiggins 1996	33		identify to genus, or species for genera monotypic in western North America whenever possible	Arthropoda	Hexapoda	Insecta
Allopiya	Banks, 1916	116438	portable-case makers	valid	yes	yes	yes	Wiggins 1996	13		primarily subalpine and alpine springs and seeps, larvae cannot be identified to species	Arthropoda	Hexapoda	Insecta
Allopiya imania	Matynov, 1935	116381	portable-case makers	synonym							synonym of Allopiya	Arthropoda	Hexapoda	Insecta
Allopiya acanthis	(Ross, 1950)	116451	portable-case makers							OR WA	subalpine & alpine small streams and springs in the Cascades	Arthropoda	Hexapoda	Insecta
Allopiya bifida	(Ross, 1950)	116453	portable-case makers							AB BC MT WY	mid and northern Rockies and coastal ranges in BC, high elevation, springs and small streams	Arthropoda	Hexapoda	Insecta
Allopiya cascadi	(Ross, 1950)	116441	portable-case makers							AB BC MT OR WA	Cascades & northern Rockies, high elevation springs and small streams	Arthropoda	Hexapoda	Insecta
Allopiya chama	(Denning, 1954)	116443	portable-case makers							CO WY	Snowy Range Mountains, Albany County, high elevation	Arthropoda	Hexapoda	Insecta
Allopiya cuboipes	(Schmid, 1968)	604634	portable-case makers							BC CA OR WA	Cascades & coastal ranges, maritime, mid to high elevation, springs and small cold streams	Arthropoda	Hexapoda	Insecta
Allopiya gnathos	(Ross, 1950)	116445	portable-case makers							CO UT	southern Rockies	Arthropoda	Hexapoda	Insecta
Allopiya hector	(Nims, 1971)	604637	portable-case makers							AB	northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Allopiya picoides	(Nims, 1950)	116447	portable-case makers							AK BC WA?	coastal ranges	Arthropoda	Hexapoda	Insecta
Allopiya rinoa	(Mills, 1935)	116449	portable-case makers							NV	Reno area in Sierras	Arthropoda	Hexapoda	Insecta
Allopiya scotti	(Wiggins, 1973)	604639	portable-case makers							OR (Mount Hood)	this species has "horns" on the head, but may not be the only species with horns	Arthropoda	Hexapoda	Insecta
Allopiya thomasi	(Nims, 1977)	604641	portable-case makers							AB	northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Allopiya truncata	(Banks, 1900)	116439	portable-case makers							AB AK BC CO MT WA WY	Coastal ranges, Rockies and Interior ranges, high elevation	Arthropoda	Hexapoda	Insecta
Allopiya new species	Eman unpublished	none	portable-case makers							CA	Nevada County, Sagehen Creek basin, Sierras	Arthropoda	Hexapoda	Insecta
Apatania	Kolenati, 1848	115935	portable-case makers	valid	yes	yes	yes	Wiggins 1996	17+		generally higher elevation, cool-cold montane streams	Arthropoda	Hexapoda	Insecta
Apatania radama	Hagen, 1864	598478	portable-case makers	synonym				Ross 1947			North American species transferred to Apatania	Arthropoda	Hexapoda	Insecta
Apatania alberta	Nims, 1971	604490	portable-case makers							AB BC ID MT	northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania arizona	Wiggins, 1973	115942	portable-case makers							AZ	spring streams at higher elevations in AZ	Arthropoda	Hexapoda	Insecta
Apatania bairi	Smith, 1969	604495	portable-case makers							ID MT	northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania chasica	(Denning, 1954)	604503	portable-case makers							CA? ID MT OR UT	northern Rockies, interior ranges OR, doubtful records from CA	Arthropoda	Hexapoda	Insecta
Apatania comosa	(Denning, 1954)	115943	portable-case makers							ID MT UT	northern Rockies and interior ranges in UT	Arthropoda	Hexapoda	Insecta

Columns A-D

- A. Final identification:** current scientific name spelled correctly
- B. Taxonomic authority:** author and year of published description
- C. ITIS TSN:** Integrated Taxonomic Information System Taxonomic Serial Number
- D. Common name**

Final identification	Taxonomic authority	ITIS TSN	Common name	Status	PINAM			Identification Literature	Number of North American species	Distribution	Comments	Taxonomic Hierarchy		
					STE 1	STE 2	STE 3					Phylum	Subphylum	Class
Trichoptera		115095	caddisflies	valid	Dit	Dit	Dit	Wiggins 1996			the occasional specimen that can't be identified to family should be entered as Trichoptera	Arthropoda	Hexapoda	Insecta
Apataniidae	Wialengren, 1886	598182	portable-case makers	valid	Dit	Dit	Dit	Wiggins 1996	33		identify to genus, or species for genera monotypic in western North America whenever possible	Arthropoda	Hexapoda	Insecta
Allomyia	Banks, 1916	116438	portable-case makers	valid	yes	yes	yes	Wiggins 1996	13		primarily subalpine and alpine springs and seeps, larvae cannot be identified to species	Arthropoda	Hexapoda	Insecta
imania	Matynov, 1935	116381	portable-case makers	synonym							synonym of Allomyia	Arthropoda	Hexapoda	Insecta
Allomyia acanthis	(Ross, 1950)	116451	portable-case makers						OR WA		subalpine & alpine small streams and springs in the Cascades	Arthropoda	Hexapoda	Insecta
Allomyia bifida	(Ross, 1950)	116453	portable-case makers						AB BC MT WY		mid and northern Rockies and coastal ranges in BC, high elevation, springs and small streams	Arthropoda	Hexapoda	Insecta
Allomyia cascada	(Ross, 1950)	116441	portable-case makers						AB BC MT OR WA		Cascades & northern Rockies, high elevation springs and small streams	Arthropoda	Hexapoda	Insecta
Allomyia chama	(Denning, 1952)	116443	portable-case makers						CO WY		Snowy Range Mountains, Albany County, high elevation	Arthropoda	Hexapoda	Insecta
Allomyia colaptes	(Schmid, 1958)	604634	portable-case makers						BC CA OR WA		Cascades & coastal ranges, maritime, mid to high elevation, springs and small cold streams	Arthropoda	Hexapoda	Insecta
Allomyia gnathos	(Ross, 1950)	116445	portable-case makers						CO UT		southern Rockies	Arthropoda	Hexapoda	Insecta
Allomyia hector	(Simms, 1971)	604637	portable-case makers						AB		northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Allomyia pooides	(Ross, 1950)	116447	portable-case makers						AK BC WA?		coastal ranges	Arthropoda	Hexapoda	Insecta
Allomyia spina	(Milne, 1935)	116449	portable-case makers						NV		Reno area in Sierras	Arthropoda	Hexapoda	Insecta
Allomyia scotti	(Wiggins, 1972)	604639	portable-case makers						OR (Mount Hood)		this species has "horns" on the head, but may not be the only species with horns	Arthropoda	Hexapoda	Insecta
Allomyia thomasi	(Simms, 1977)	604641	portable-case makers						AB		northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Allomyia truncatula	(Banks, 1905)	116439	portable-case makers						AB AK BC CO MT WA WY		Coastal ranges, Rockies and Interior ranges, high elevation	Arthropoda	Hexapoda	Insecta
Allomyia new species	Eman unpublished	none	portable-case makers						CA		Nevada County, Sagehen Creek basin, Sierras	Arthropoda	Hexapoda	Insecta
Apatania	Kolenati, 1848	115935	portable-case makers	valid	yes	yes	yes	Wiggins 1996	17+		generally higher elevation, cool-cold montane streams	Arthropoda	Hexapoda	Insecta
Radama	Hagen, 1864	598478	portable-case makers	synonym				Ross 1947			North American species transferred to Apatania	Arthropoda	Hexapoda	Insecta
Apatania alberta	Simms, 1971	604490	portable-case makers						AB BC ID MT		northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania arizona	Wiggins, 1973	115942	portable-case makers						AZ		spring streams at higher elevations in AZ	Arthropoda	Hexapoda	Insecta
Apatania bam	Smith, 1969	604495	portable-case makers						ID MT		northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania chasca	(Denning, 1954)	604503	portable-case makers						CA? ID MT OR UT		northern Rockies, interior ranges OR, doubtful records from CA	Arthropoda	Hexapoda	Insecta
Apatania comosa	(Denning, 1954)	115944	portable-case makers						ID MT UT		northern Rockies and interior ranges in UT	Arthropoda	Hexapoda	Insecta

Column E

Status of name

Valid

Synonym

Monotypic

Single North America

Dubious

Discontinued

Final identification	Taxonomic authority	ITIS TSN	Common name	Status	PNAME			Identification Literature	Number of North American species	Distribution	Comments	Taxonomic Hierarchy		
					STE 1	STE 2	STE 3					Phylum	Subphylum	Class
Trichoptera		115095	catflies	valid	D1	D1	D1	Wiggins 1996			the occasional specimen that can't be identified to family should be entered as Trichoptera	Arthropoda	Hexapoda	Insecta
Apataniidae	Wallengren, 1896	598182	portable-case makers	valid	D1	D1	D1	Wiggins 1996	33		identify to genus, or species for genera monotypic; in western North America whenever possible	Arthropoda	Hexapoda	Insecta
Allomyia	Banks, 1916	116438	portable-case makers	valid	yes	yes	yes	Wiggins 1996	13		primarily subalpine and alpine springs and seeps; larvae cannot be identified to species	Arthropoda	Hexapoda	Insecta
imera	Malynev, 1935	116381	portable-case makers	synonym							synonym of Allomyia	Arthropoda	Hexapoda	Insecta
Allomyia acanthis	(Ross, 1950)	116451	portable-case makers							OR WA	subalpine & alpine small streams and springs in the Cascades	Arthropoda	Hexapoda	Insecta
Allomyia bifida	(Ross, 1950)	116453	portable-case makers							AB BC MT WY	mid and northern Rockies and coastal ranges in BC, high elevation, springs and small streams	Arthropoda	Hexapoda	Insecta
Allomyia cascadi	(Ross, 1950)	116441	portable-case makers							AB BC MT OR WA	Cascades & northern Rockies, high elevation springs and small streams	Arthropoda	Hexapoda	Insecta
Allomyia chama	(Denning, 1954)	116443	portable-case makers							CO WY	Snowy Range Mountains, Albany County, high elevation	Arthropoda	Hexapoda	Insecta
Allomyia colaptes	(Schmid, 1968)	604634	portable-case makers							BC CA OR WA	Cascades & coastal ranges, maritime, mid to high elevation, springs and small cold streams	Arthropoda	Hexapoda	Insecta
Allomyia gnathos	(Ross, 1950)	116445	portable-case makers							CO UT	southern Rockies	Arthropoda	Hexapoda	Insecta
Allomyia hector	(Simms, 1971)	604637	portable-case makers							AB	northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Allomyia picoides	(Ross, 1950)	116447	portable-case makers							AK BC WA?	coastal ranges	Arthropoda	Hexapoda	Insecta
Allomyia rinoa	(Milne, 1935)	116449	portable-case makers							NV	Reno area in Sierras	Arthropoda	Hexapoda	Insecta
Allomyia scotti	(Wiggins, 1972)	604639	portable-case makers							OR (Mount Hood)	this species has "horns" on the head, but may not be the only species with horns	Arthropoda	Hexapoda	Insecta
Allomyia Thomasi	(Simms, 1977)	604641	portable-case makers							AB	northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Allomyia truncatata	(Banks, 1900)	116439	portable-case makers							AB AK BC CO MT WA WY	Coastal ranges, Rockies and Interior ranges, high elevation	Arthropoda	Hexapoda	Insecta
Allomyia new species	Eman unpublished	none	portable-case makers							CA	Nevada County, Sagehen Creek basin, Sierras	Arthropoda	Hexapoda	Insecta
Apatania	Kolenati, 1848	115935	portable-case makers	valid	yes	yes	yes	Wiggins 1996	17+		generally higher elevation, cool-cold montane streams	Arthropoda	Hexapoda	Insecta
Radana	Hagen, 1864	598478	portable-case makers	synonym				Ross 1947			North American species transferred to Apatania	Arthropoda	Hexapoda	Insecta
Apatania alberta	Simms, 1971	604490	portable-case makers							AB BC ID MT	northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania arizona	Wiggins, 1973	115942	portable-case makers							AZ	spring streams at higher elevations in AZ	Arthropoda	Hexapoda	Insecta
Apatania barni	Smith, 1969	604495	portable-case makers							ID MT	northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania chasica	(Denning, 1954)	604503	portable-case makers							CA? ID MT OR UT	northern Rockies, interior ranges OR, doubtful records from CA	Arthropoda	Hexapoda	Insecta
Apatania comosa	(Denning, 1954)	115943	portable-case makers							ID MT UT	northern Rockies and interior ranges in UT	Arthropoda	Hexapoda	Insecta

Cross Referencing

Rhyacophila brunnea/vemna group includes

- Rhyacophila brunnea
- Rhyacophila brunnea group
- Rhyacophila acropedes
- Rhyacophila acropedes group
- Rhyacophila vao
- Rhyacophila vemna

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					STE 1	STE 2	STE 3					Phylum	Subphylum	Class
Trichoptera		115095	caddisflies	valid	D/I	D/I	D/I	Wiggins 1996			the occasional specimen that can't be identified to family should be entered as Trichoptera	Arthropoda	Hexapoda	Insecta
Apataniidae	Wallengren, 1896	598182	portable-case makers	valid	D/I	D/I	D/I	Wiggins 1996	33		identify to genus, or species for genera monotypic; in western North America whenever possible	Arthropoda	Hexapoda	Insecta
Allogmia	Banks, 1916	115438	portable-case makers	valid	yes	yes	yes	Wiggins 1996	13		primarily subalpine and alpine springs and seeps, larvae cannot be identified to species	Arthropoda	Hexapoda	Insecta
Allogmia imania	Martynov, 1935	116381	portable-case makers	synonym							synonym of Allogmia	Arthropoda	Hexapoda	Insecta
Alomyia acanthis	(Ross, 1950)	116451	portable-case makers							OR WA	subalpine & alpine small streams and springs in the Cascades	Arthropoda	Hexapoda	Insecta
Alomyia bifosa	(Ross, 1950)	116453	portable-case makers							AB BC MT WY	mid and northern Rockies and coastal ranges in BC, high elevation, springs and small streams	Arthropoda	Hexapoda	Insecta
Alomyia cascada	(Ross, 1950)	116441	portable-case makers							AB BC MT OR WA	Cascades & northern Rockies, high elevation springs and small streams	Arthropoda	Hexapoda	Insecta
Alomyia chama	(Denning, 1953)	116443	portable-case makers							CO WY	Snowy Range Mountains, Albany County, high elevation	Arthropoda	Hexapoda	Insecta
Alomyia colubae	(Schmid, 1968)	604634	portable-case makers							BC CA OR WA	Cascades & coastal ranges, maritime, mid to high elevation, springs and small cold streams	Arthropoda	Hexapoda	Insecta
Alomyia gnathos	(Ross, 1950)	116445	portable-case makers							CO UT	southern Rockies	Arthropoda	Hexapoda	Insecta
Alomyia hector	(Simms, 1971)	604637	portable-case makers							AB	northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Alomyia picoides	(Ross, 1950)	116447	portable-case makers							AK BC WA?	coastal ranges	Arthropoda	Hexapoda	Insecta
Alomyia rinoa	(Milne, 1935)	116449	portable-case makers							NV	Reno area in Sierras	Arthropoda	Hexapoda	Insecta
Alomyia scotti	(Wiggins, 1973)	604639	portable-case makers							OR (Mount Hood)	this species has "horns" on the head, but may not be the only species with horns	Arthropoda	Hexapoda	Insecta
Alomyia thomasi	(Simms, 1977)	604641	portable-case makers							AB	northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Alomyia truncifala	(Banks, 1900)	116439	portable-case makers							AB AK BC CO MT WA WY	Coastal ranges, Rockies and Interior ranges, high elevation	Arthropoda	Hexapoda	Insecta
Alomyia new species	Eman unpublished	none	portable-case makers							CA	Nevada County, Sagehen Creek basin, Sierras	Arthropoda	Hexapoda	Insecta
Apatania	Kolenati, 1848	115935	portable-case makers	valid	yes	yes	yes	Wiggins 1996	17+		generally higher elevation, cool-cold montane streams	Arthropoda	Hexapoda	Insecta
Apatania radama	Hagen, 1864	598478	portable-case makers	synonym				Ross 1947			North American species transferred to Apatania	Arthropoda	Hexapoda	Insecta
Apatania alberta	Simms, 1971	604490	portable-case makers							AB BC ID MT	northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania arizona	Wiggins, 1973	115942	portable-case makers							AZ	spring streams at higher elevations in AZ	Arthropoda	Hexapoda	Insecta
Apatania bairi	Smith, 1969	604495	portable-case makers							ID MT	northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania charica	(Denning, 1954)	604503	portable-case makers							CA? ID MT OR UT	northern Rockies, interior ranges OR, doubtful records from CA	Arthropoda	Hexapoda	Insecta
Apatania comosa	(Denning, 1954)	115944	portable-case makers							ID MT UT	northern Rockies and interior ranges in UT	Arthropoda	Hexapoda	Insecta

Columns F-H: STE Levels 1-3

	PNAMP STE 1	PNAMP STE 2	PNAMP STE 3
Brachycentrus	yes	D/I	D/I
Brachycentrus occidentalis		yes	yes

D/I= damaged or immature specimen(s): flag as unique or not unique

Final Identification	Taxonomic authority	ITIS TSN	Common name	Status	PINAM PINAL PINAMP			Identification Literature	Number of North American species	Distribution	Comments	Taxonomic Hierarchy		
					STE 1	STE 2	STE 3					Phylum	Subphylum	Class
Trichoptera		115095	caddisflies	valid	D1	D1	D1	Wiggins 1996			the occasional specimen that can't be identified to family should be entered as Trichoptera	Arthropoda	Hexapoda	Insecta
Apataniidae	Wallengren, 1896	598182	portable-case makers	valid	D1	D1	D1	Wiggins 1996	33		identify to genus, or species for genera monotypic; in western North America whenever possible	Arthropoda	Hexapoda	Insecta
Alomyia	Banks, 1916	116438	portable-case makers	valid	YES	YES	YES	Wiggins 1996	13		primarily subalpine and alpine springs and seeps; larvae cannot be identified to species	Arthropoda	Hexapoda	Insecta
Alomyia imania	Martynov, 1935	116381	portable-case makers	synonym							synonym of Alomyia	Arthropoda	Hexapoda	Insecta
Alomyia acanthis	(Ross, 1950)	116451	portable-case makers							OR WA	subalpine & alpine small streams and springs in the Cascades	Arthropoda	Hexapoda	Insecta
Alomyia bifida	(Ross, 1950)	116453	portable-case makers							AB BC MT WY	mid and northern Rockies and coastal ranges in BC, high elevation, springs and small streams	Arthropoda	Hexapoda	Insecta
Alomyia cascadi	(Ross, 1950)	116441	portable-case makers							AB BC MT OR WA	Cascades & northern Rockies, high elevation springs and small streams	Arthropoda	Hexapoda	Insecta
Alomyia chama	(Denning, 1953)	116443	portable-case makers							CO WY	Snowy Range Mountains, Albany County, high elevation	Arthropoda	Hexapoda	Insecta
Alomyia colubae	(Schmid, 1968)	604634	portable-case makers							BC CA OR WA	Cascades & coastal ranges, maritime, mid to high elevation, springs and small cold streams	Arthropoda	Hexapoda	Insecta
Alomyia gnathos	(Ross, 1950)	116445	portable-case makers							CO UT	southern Rockies	Arthropoda	Hexapoda	Insecta
Alomyia hector	(Nims, 1971)	604637	portable-case makers							AB	northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Alomyia pooides	(Nims, 1950)	116447	portable-case makers							AK BC WA?	coastal ranges	Arthropoda	Hexapoda	Insecta
Alomyia rinoa	(Mills, 1935)	116449	portable-case makers							NV	Reno area in Sierras	Arthropoda	Hexapoda	Insecta
Alomyia scotti	(Wiggins, 1973)	604639	portable-case makers							OR (Mount Hood)	this species has "horns" on the head, but may not be the only species with horns	Arthropoda	Hexapoda	Insecta
Alomyia thomasi	(Nims, 1977)	604641	portable-case makers							AB	northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Alomyia bipunctata	(Banks, 1900)	116439	portable-case makers							AB AK BC CO MT WA WY	Coastal ranges, Rockies and Interior ranges, high elevation	Arthropoda	Hexapoda	Insecta
Alomyia new species	Eman unpublished	none	portable-case makers							CA	Nevada County, Sagehen Creek basin, Sierras	Arthropoda	Hexapoda	Insecta
Apatania	Kolenati, 1848	115935	portable-case makers	valid	YES	YES	YES	Wiggins 1996	17+		generally higher elevation, cool-cold montane streams	Arthropoda	Hexapoda	Insecta
Apatania radama	Hagen, 1864	598478	portable-case makers	synonym				Ross 1947			North American species transferred to Apatania	Arthropoda	Hexapoda	Insecta
Apatania alberta	Nims, 1971	604490	portable-case makers							AB BC ID MT	northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania arizona	Wiggins, 1973	115942	portable-case makers							AZ	spring streams at higher elevations in AZ	Arthropoda	Hexapoda	Insecta
Apatania bairi	Smith, 1969	604495	portable-case makers							ID MT	northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania chasica	(Denning, 1954)	604503	portable-case makers							CA? ID MT OR UT	northern Rockies, interior ranges OR, doubtful records from CA	Arthropoda	Hexapoda	Insecta
Apatania comosa	(Denning, 1956)	115944	portable-case makers							ID MT UT	northern Rockies and interior ranges in UT	Arthropoda	Hexapoda	Insecta

Column I

Identification Literature

- Reference used for identification
- Reference used when there is taxonomic controversy
e.g Hydropsyche use Wiggins 1996 broader definition
Ceratopsyche or Symphitopsyche not accepted

Final identification	Taxonomic authority	ITIS TSN	Common name	Status	PINAM/PNAL/PINAMP			Identification Literature	Number of North American species	Distribution	Comments	Taxonomic Hierarchy		
					STE 1	STE 2	STE 3					Phylum	Subphylum	Class
Trichoptera		115095	caddisflies	valid	Di	Di	Di	Wiggins 1996			the occasional specimen that can't be identified to family should be entered as Trichoptera	Arthropoda	Hexapoda	Insecta
Apataniidae	Wallengren, 1896	598182	portable-case makers	valid	Di	Di	Di	Wiggins 1996	33		identify to genus, or species for genera monotypic; in western North America whenever possible	Arthropoda	Hexapoda	Insecta
Allopygia	Banks, 1916	116438	portable-case makers	valid	yes	yes	yes	Wiggins 1996	13		primarily subalpine and alpine springs and seeps; larvae cannot be identified to species	Arthropoda	Hexapoda	Insecta
Alomyia	Martynov, 1935	116381	portable-case makers	synonym							synonym of Alomyia	Arthropoda	Hexapoda	Insecta
Alomyia acanthis	(Ross, 1950)	116451	portable-case makers							OR WA	subalpine & alpine small streams and springs in the Cascades	Arthropoda	Hexapoda	Insecta
Alomyia bifida	(Ross, 1950)	116451	portable-case makers							AB BC MT WY	mid and northern Rockies and coastal ranges in BC, high elevation, springs and small streams	Arthropoda	Hexapoda	Insecta
Alomyia cascadia	(Ross, 1950)	116441	portable-case makers							AB BC MT OR WA	Cascades & northern Rockies, high elevation springs and small streams	Arthropoda	Hexapoda	Insecta
Alomyia chama	(Denning, 1952)	116443	portable-case makers							CO WY	Snowy Range Mountains, Albany County, high elevation	Arthropoda	Hexapoda	Insecta
Alomyia colubae	(Schmid, 1968)	604634	portable-case makers							BC CA OR WA	Cascades & coastal ranges, maritime, mid to high elevation, springs and small cold streams	Arthropoda	Hexapoda	Insecta
Alomyia gnathos	(Ross, 1950)	116445	portable-case makers							CO UT	southern Rockies	Arthropoda	Hexapoda	Insecta
Alomyia hector	(Niemö, 1971)	604637	portable-case makers							AB	northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Alomyia peoides	(Ross, 1950)	116447	portable-case makers							AK BC WA?	coastal ranges	Arthropoda	Hexapoda	Insecta
Alomyia rinoa	(Mills, 1935)	116449	portable-case makers							NV	Reno area in Sierras	Arthropoda	Hexapoda	Insecta
Alomyia scotti	(Wiggins, 1972)	604639	portable-case makers							OR (Mount Hood)	this species has "horns" on the head, but may not be the only species with horns	Arthropoda	Hexapoda	Insecta
Alomyia thomasi	(Niemö, 1977)	604641	portable-case makers							AB	northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Alomyia truncatata	(Banks, 1900)	116439	portable-case makers							AB AK BC CO MT WA WY	Coastal ranges, Rockies and Interior ranges, high elevation	Arthropoda	Hexapoda	Insecta
Alomyia new species	Eman unpublished	none	portable-case makers							CA	Nevada County, Sagehen Creek basin, Sierras	Arthropoda	Hexapoda	Insecta
Apatania	Kolenati, 1848	115935	portable-case makers	valid	yes	yes	yes	Wiggins 1996	17+		generally higher elevation, cool-cold montane streams	Arthropoda	Hexapoda	Insecta
Apatania radana	Hagen, 1864	598478	portable-case makers	synonym				Ross 1947			North American species transferred to Apatania	Arthropoda	Hexapoda	Insecta
Apatania alberta	Niemö, 1971	604490	portable-case makers							AB BC ID MT	northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania arizona	Wiggins, 1973	115942	portable-case makers							AZ	spring streams at higher elevations in AZ	Arthropoda	Hexapoda	Insecta
Apatania dami	Smith, 1905	604495	portable-case makers							ID MT	northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania chasica	(Denning, 1954)	604503	portable-case makers							CA? ID MT OR UT	northern Rockies, interior ranges OR, doubtful records from CA	Arthropoda	Hexapoda	Insecta
Apatania comosa	(Denning, 1956)	115944	portable-case makers							ID MT UT	northern Rockies and interior ranges in UT	Arthropoda	Hexapoda	Insecta

Columns J-L

J. Number of North American Species

K. Distribution: Western North America states and provinces

L. Comments necessary for any clarification on name or appropriate STE level

Final identification	Taxonomic authority	ITIS TSN	Common name	Status	PINAM			Identification Literature	Number of North American species	Distribution	Comments	Taxonomic Hierarchy		
					STE 1	STE 2	STE 3					Phylum	Subphylum	Class
Trichoptera		115095	caddisflies	valid	D1	D1	D1	Wiggins 1996			the occasional specimen that can't be identified to family should be entered as Trichoptera	Arthropoda	Hexapoda	Insecta
Apataniidae	Wallengren, 1886	598182	portable-case makers	valid	D1	D1	D1	Wiggins 1996	33		identify to genus, or species for genera monotypic in western North America whenever possible	Arthropoda	Hexapoda	Insecta
Alomyia	Banks, 1916	116438	portable-case makers	valid	yes	yes	yes	Wiggins 1996	13		primarily subalpine and alpine springs and seeps, larvae cannot be identified to species	Arthropoda	Hexapoda	Insecta
Alomyia imania	Martynov, 1935	116381	portable-case makers	synonym							synonym of Alomyia	Arthropoda	Hexapoda	Insecta
Alomyia acanthia	(Ross, 1950)	116451	portable-case makers						OR WA		subalpine & alpine small streams and springs in the Cascades	Arthropoda	Hexapoda	Insecta
Alomyia bifosa	(Ross, 1950)	116453	portable-case makers						AB BC MT WY		mid and northern Rockies and coastal ranges in BC, high elevation, springs and small streams	Arthropoda	Hexapoda	Insecta
Alomyia cascada	(Ross, 1950)	116441	portable-case makers						AB BC MT OR WA		Cascades & northern Rockies, high elevation springs and small streams	Arthropoda	Hexapoda	Insecta
Alomyia chama	(Denning, 1954)	116443	portable-case makers						CO WY		Snowy Range Mountains, Albany County, high elevation	Arthropoda	Hexapoda	Insecta
Alomyia colubae	(Schmid, 1968)	604634	portable-case makers						BC CA OR WA		Cascades & coastal ranges, maritime, mid to high elevation, springs and small cold streams	Arthropoda	Hexapoda	Insecta
Alomyia gnathos	(Ross, 1950)	116445	portable-case makers						CO UT		southern Rockies	Arthropoda	Hexapoda	Insecta
Alomyia hector	(Nimmo, 1971)	604637	portable-case makers						AB		northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Alomyia picoides	(Ross, 1950)	116447	portable-case makers						AK BC WA?		coastal ranges	Arthropoda	Hexapoda	Insecta
Alomyia rinoa	(Milne, 1935)	116449	portable-case makers						NV		Reno area in Sierras	Arthropoda	Hexapoda	Insecta
Alomyia scotti	(Wiggins, 1973)	604639	portable-case makers						OR (Mount Hood)		this species has "horns" on the head, but may not be the only species with horns	Arthropoda	Hexapoda	Insecta
Alomyia thomasi	(Nimmo, 1977)	604641	portable-case makers						AB		northern Rockies, high elevation small streams	Arthropoda	Hexapoda	Insecta
Alomyia truncatula	(Banks, 1905)	116439	portable-case makers						AB AK BC CO MT WA WY		Coastal ranges, Rockies and Interior ranges, high elevation	Arthropoda	Hexapoda	Insecta
Alomyia new species	Eman unpublished	none	portable-case makers						CA		Nevada County, Sagehen Creek basin, Sierras	Arthropoda	Hexapoda	Insecta
Apatania	Kolenati, 1848	115935	portable-case makers	valid	yes	yes	yes	Wiggins 1996	17+		generally higher elevation, cool-cold montane streams	Arthropoda	Hexapoda	Insecta
Apatania radama	Hagen, 1864	598478	portable-case makers	synonym				Ross 1947			North American species transferred to Apatania	Arthropoda	Hexapoda	Insecta
Apatania alberta	Nimmo, 1971	604490	portable-case makers						AB BC ID MT		northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania arizona	Wiggins, 1973	115942	portable-case makers						AZ		spring streams at higher elevations in AZ	Arthropoda	Hexapoda	Insecta
Apatania bam	Smith, 1969	604495	portable-case makers						ID MT		northern Rockies	Arthropoda	Hexapoda	Insecta
Apatania chasica	(Denning, 1954)	604503	portable-case makers						CA? ID MT OR UT		northern Rockies, interior ranges OR, doubtful records from CA	Arthropoda	Hexapoda	Insecta
Apatania comosa	(Denning, 1949)	115564	portable-case makers						ID MT UT		northern Rockies and interior ranges in UT	Arthropoda	Hexapoda	Insecta

Columns M-AB

Taxonomic Hierarchy

Includes subfamilies, tribes, species groups and even some subspecies



NWSTE Taxa Lists

Groups ready for review

Bivalvia, Elmidae, Ephemeroptera,
Gastropoda, Plecoptera, Trichoptera

Groups in progress

Chironomidae, Crustacea, Dytiscidae,
Hemiptera, Odonata, Oligochaeta

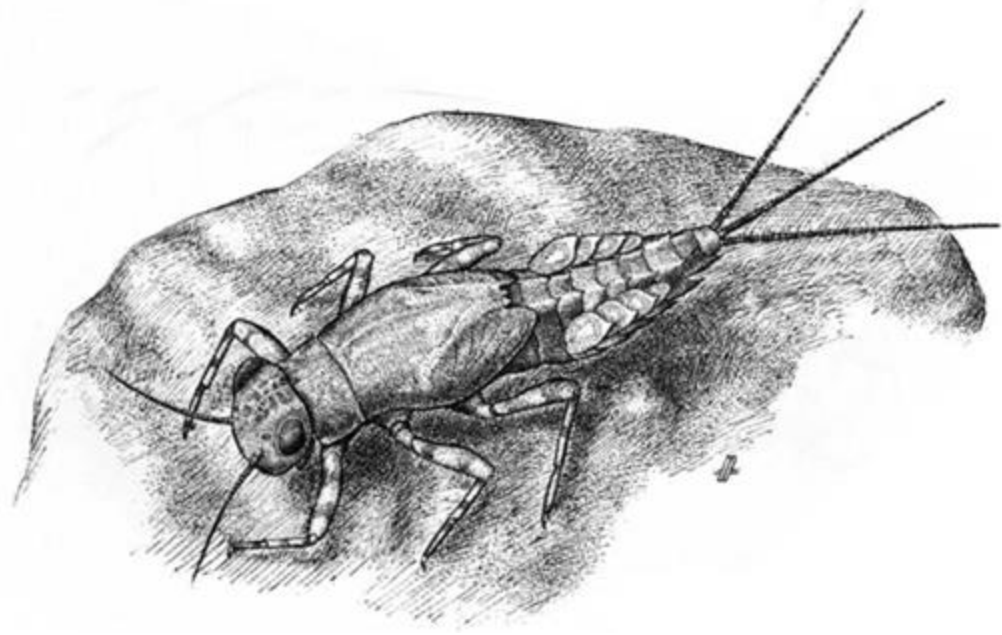
Still to go

Hydrophilidae, Lepidoptera,
Megaloptera, Misc. (other Coleoptera,
Diptera, non-insects), Neuroptera,
Provisional taxa

Recent Taxonomic Changes Incorporated in the NWSTE



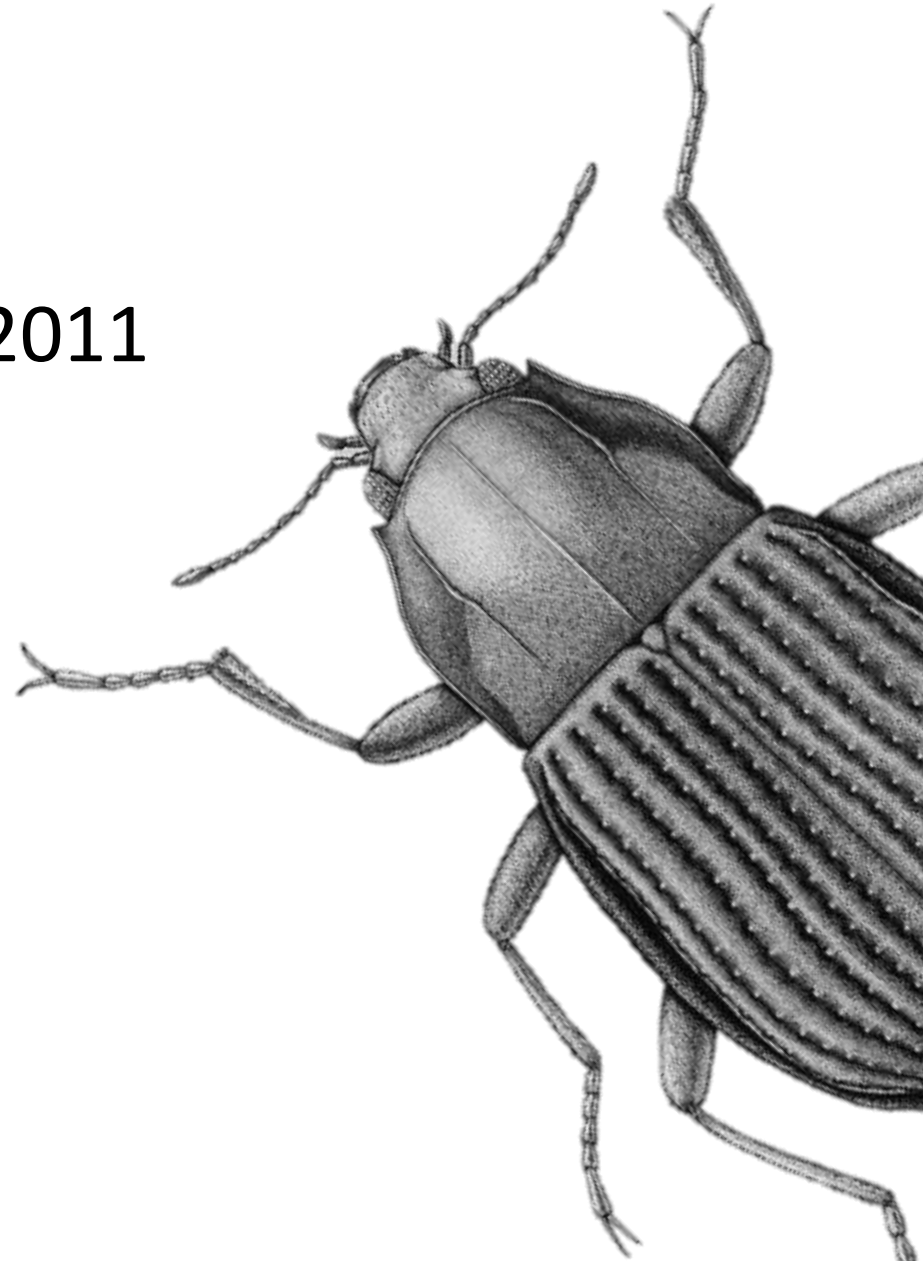
Ephemeroptera



- Caenidae
 - *Susperatus* sp.
- Ephemerellidae
 - *Serratella tibialis* moved to genus *Ephemerella*
 - *Serratella velmae* moved to genus *Ephemerella*
 - *Serratella teresa* moved to genus *Matriella*

Coleoptera

Elmidae - Bryelmis Barr, 2011



Gastropoda

Hydrobiidae Split into Four Families

Amnicolidae

Colligyrus

Cochliopidae

Tryonia

Hydrobiidae

Potamopyrgus

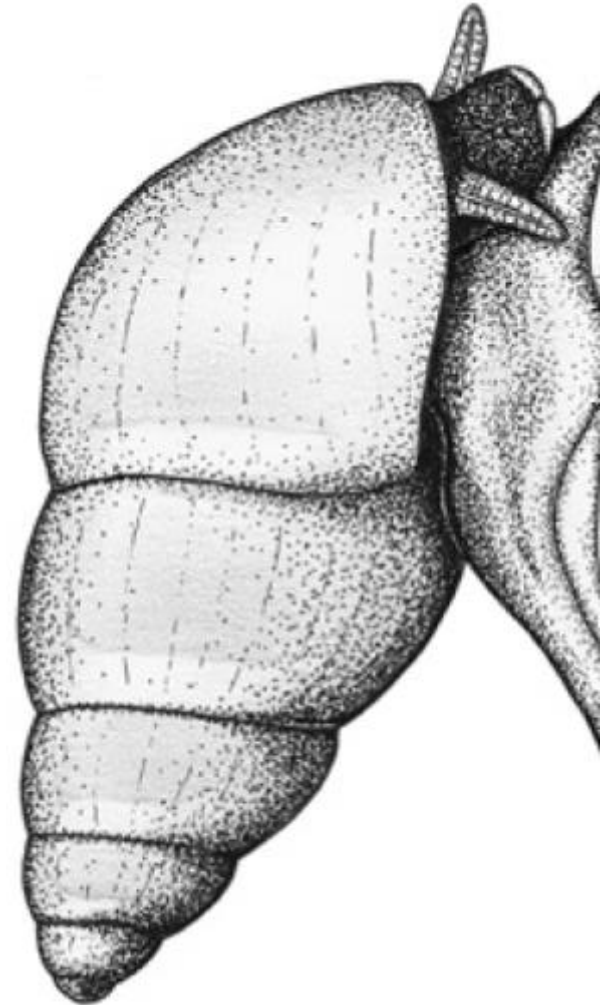
Pyrgulopsis

Lithoglyphidae

Fluminicola

Pristinicola

Taylorconcha



Gastropoda



Pleuroceridae

Juga now in Family Semisulcospiridae



Ancylidae

Placed into Family Planorbidae

Gastropoda



Physidae

Genus *Physella* reinstated



Lymnaeidae

Fossaria is now *Galba*

Invasives

- *Bithynia tentaculata*
- *Biomphilaria havenensis*
- *Melanooides tuberculata*
- *Exopalaemon modestus*
- *Potamopyrgus antipodarum*
- *Bellamyia chinensis*
- *Dreissena polymorpha*
- *Dreissena rostriformis bugensis*



FEED
BACK

Return on Investment



Level of Effort

- Oligochaeta to class or family for STE 2?
- Acari (mites) to subclass or genus?



ITIS Taxonomic Serial Number



How important are these to users?

We assign provisional TSN's

e.g. *Rhyacophila* 115097

Rhyacophila alberta group 115097a

ITIS Taxonomic Serial Number



- Uncertainty of continued support for ITIS
- ITIS does not accept species groups, etc.
- ITIS is years behind

Do we want to have our own PNW serial number?



Provisional Taxa



- Develop process to document undescribed taxa?
- Use the SCAMIT Model

Southern California Association of Marine Invertebrate Taxonomists
scamit.org

Data Coding



- Unique/Not Unique Taxa
- STE not achieved?
- Incidental Taxa



PNAMP guidance



- Minimum subsample, e.g. 500 or 600 organisms?
- SOP's for laboratory protocols?
- QA/QC for sorting efficacy and taxonomy?

Future additions to the STE



- Standardizing taxa traits?
- Common names and distribution tables?
- Drift samples, fish stomach content samples, others?





Schedule

- Final draft of all taxa by March 2014
- Initial review done by April 2014
- Final 2014 version by May 1, 2014

Where to find the NWSTE Documents



<http://www.pnamp.org/project/4210>

OR

Go to: pnamp.org > Projects >
Northwest Standard Taxonomic Effort

OR

Email: apuls@usgs.gov



Northwest Standard Taxonomic Effort

Project Description

This project is a sub-component of a larger PNAMP project: [Habitat Data Sharing](#)

There is agreement among aquatic ecologists in the Pacific Northwest that the sharing of macroinvertebrate data would be aided by a regional standard taxonomic effort (STE) agreement. Data sharing is constrained in part by lack of agreement among organizations that collect and/or process macroinvertebrates samples as to the authoritative taxonomic nomenclature appropriate for collected specimens and the level of taxonomic resolution that is appropriate for different assessment purposes. Following on work done in other regions, the group wishes to explore the need and opportunity for standard taxonomic effort (STE) agreements in the Pacific Northwest. This need was presented at a sponsored session at the October 2012 Northwest Biological Assessment Workgroup (NBAW) workshop. The first part of the STE session included 4 talks representing various stakeholder perspectives (see related documents to the lower right), and was followed by discussion on how to frame a regional STE over the course of the next year. The goal is to have a draft Northwest STE plan for approval at the 2013 NBAW workshop.

Project Team

This project is being conducted through in-kind contributions of the Macroinvertebrate Planning Group, a sub-group of the Habitat Data Sharing Project. Taxonomists Bob Wisseman (ABA), Sean Sullivan (Rhithron), and John Pfeiffer (EcoAnalysts) are leading the development of the NWSTE taxa lists. The project is coordinated by PNAMP staff biologist Amy Puls.

Highlights

We need your help reviewing the draft NWSTE taxa lists!

Nov 5 2013 - 11:13pm

We are continuing to make progress on developing and refining the NWSTE taxa lists. Lists ready for review include: Bivalvia, Elmidae, Ephemeroptera, Gastropoda, Plecoptera and Trichoptera. We are seeking comments on suggested STE levels for individual taxa, errors seen, names you use that are missing from the STE list, and any other feedback you have.

Please list comments and questions with the specific spreadsheet row(s) and/or cell(s) to which your comments apply. You can list comments in a new sheet in the Excel file, in a Word document, or just in the body of an email.

General suggestions, comments, and/or questions should be emailed to Amy Puls (apuls@usgs.gov) cc'ing Bob Wisseman, Sean Sullivan and John Pfeiffer

Taxonomic group suggestions, comments, and questions can be emailed directly to the taxonomic group editor:

Bivalvia, Gastropoda, and Plecoptera: John Pfeiffer,
jpfeiffer@ecoanalysts.com

Elmidae and Ephemeroptera: Sean Sullivan, ssullivan@rhithron.com

Trichoptera: Bob Wisseman, bobwisseman@mac.com

Thanks in advance for your help in reviewing these lists!

Links to the lists

Bivalvia: <http://www.pnamp.org/document/4319>

Elmidae: <http://www.pnamp.org/document/4395>

Ephemeroptera: <http://www.pnamp.org/document/4212>

Gastropoda: <http://www.pnamp.org/document/4394>

Plecoptera: <http://www.pnamp.org/document/4224>

Trichoptera: <http://www.pnamp.org/document/4211>

Maintenance and Updates



- Process to propose and accept changes and updates?
- Volunteer editors for each group?

We need you



To help us review the taxa lists

General comments on suggested STE level for individual taxa

Any errors seen?

Review your data sets and databases for any names missing from the STE list – we'll include them

Review by Taxonomists



Internal review by labs

Aquatic Biology Associates, Inc.-Bob Wisseman

ABR, Inc.- Mike Cole

EcoAnalysts, Inc.- John Pfeiffer

Rhithron Associates, Inc.-Sean Sullivan

External review by other labs

USGS Denver - Scott Grotheer, Steve Moulton

Buglab, Logan Utah - Scott Miller

ABL lab, Chico, CA - Joe Slusark & crew

External review by specialists

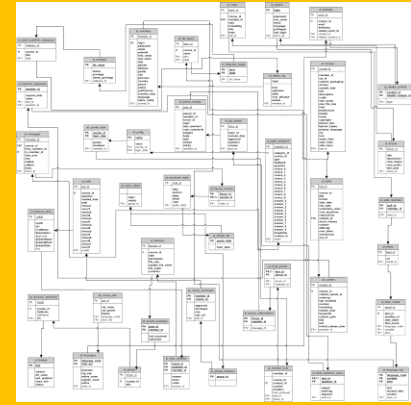
Bivalves- Ed Johannes, Deixus Consultants, Gerry Mackie, Univ. Guelph

Ephemeroptera- Luke Jacobus, Purdue

Plecoptera- Richard Baumann, Brigham Young Univ, John Sandberg, ABL

Trichoptera- Dave Ruitter

Review by Database Managers



Puget Sound Stream Benthos

WA DOE

OR DEQ

ID DEQ

MT DEQ

CA SWAMP

Private lab databases

USGS Biodata

Volunteers?



We are also still looking for help with developing the taxa lists for:

Hydrophilidae, Lepidoptera, Megaloptera, Misc.
(other Coleoptera, Diptera, non-insects),
Neuroptera, Provisional taxa



Questions?

Additional Discussion Topics

1. How can we (taxonomists/ data producers) best communicate taxonomic information? Common names? Citations?
2. What methods can be used at the bench to further reduce variability among data producers? Do these need to get incorporated into a STE methods section?
3. What else can we collectively address to reduce noise in bioassessment data?

