Classification and Mapping of Wetlands in the Cook Inlet Basin

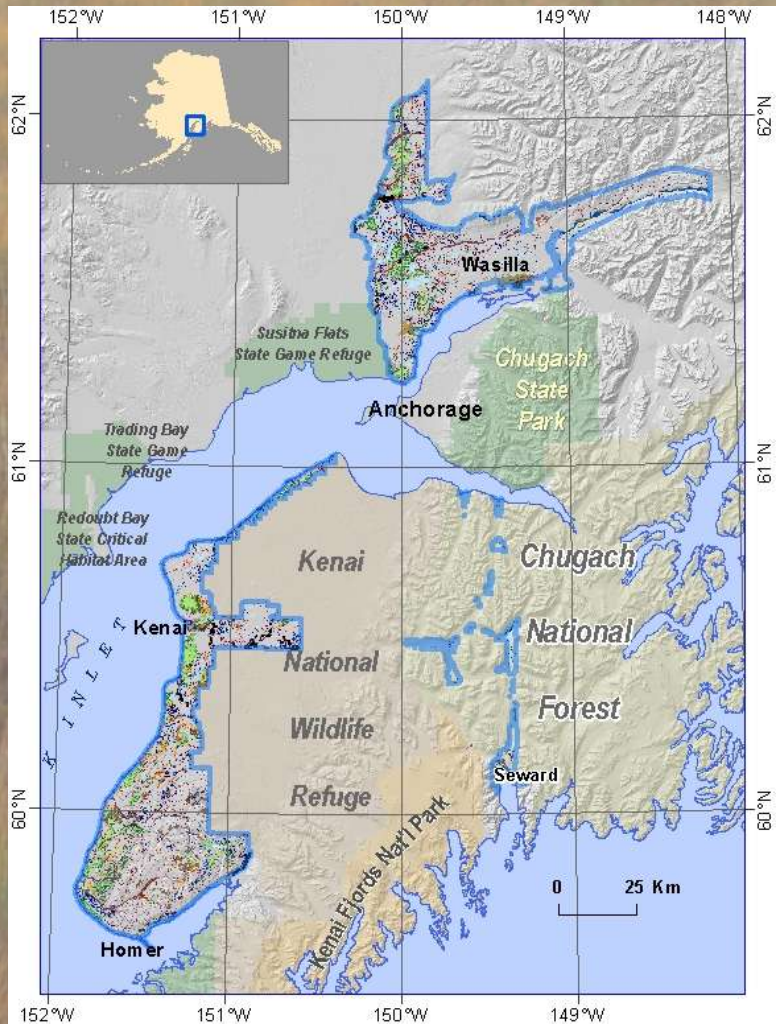
Mike Gracz

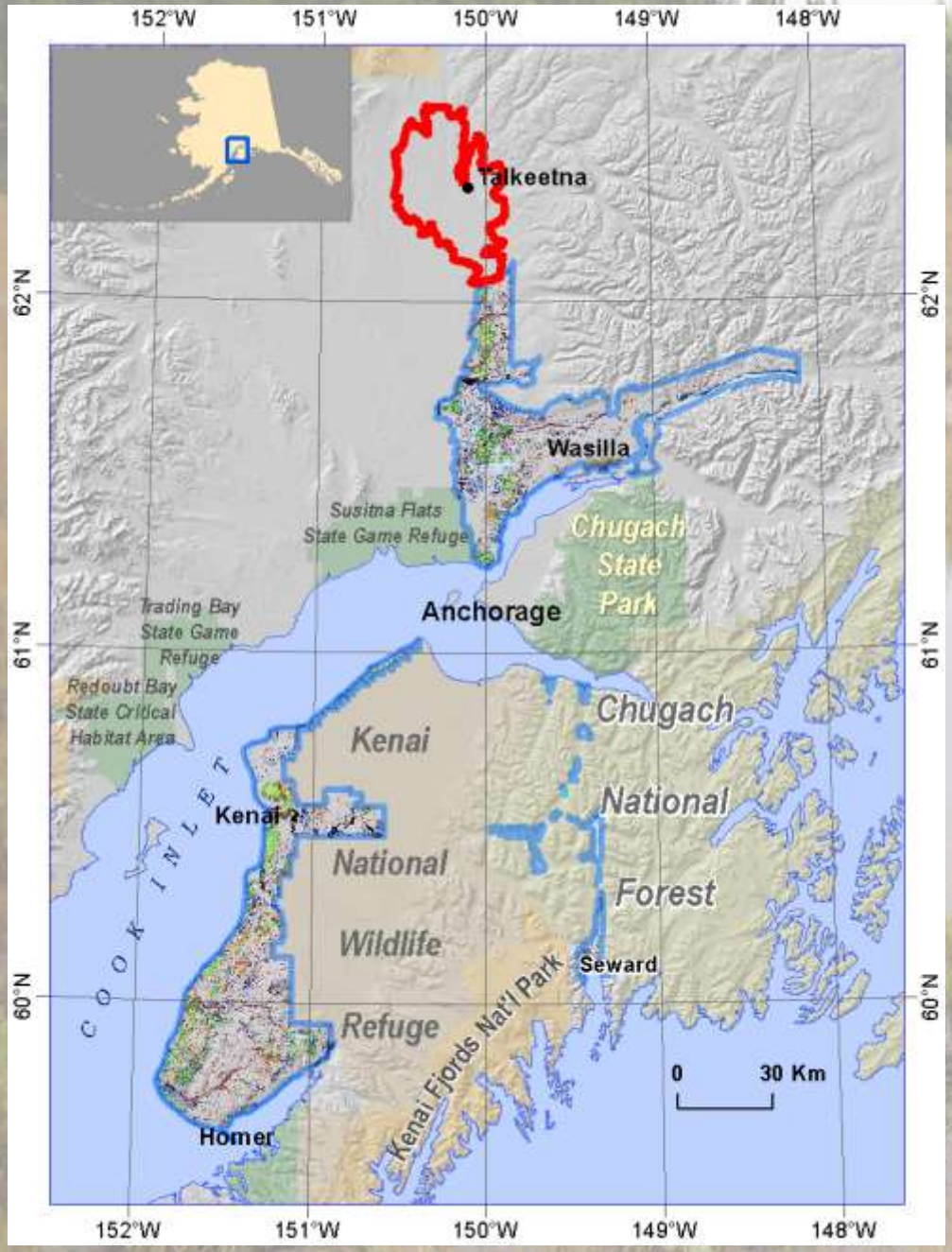
PhD Candidate, University of Minnesota

Wetland Program Manager

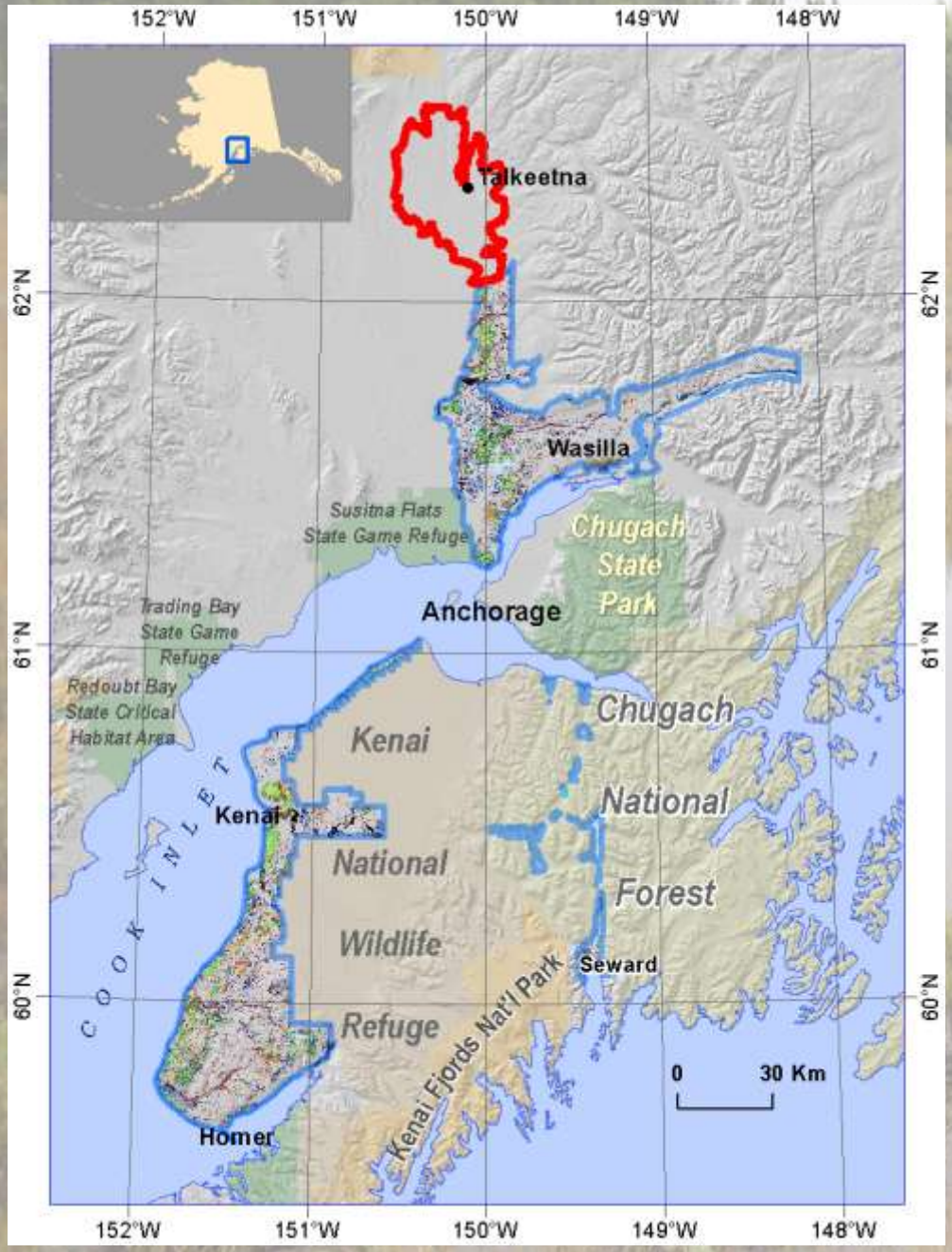
Kenai Watershed Forum

mike@kenaiwatershed.org

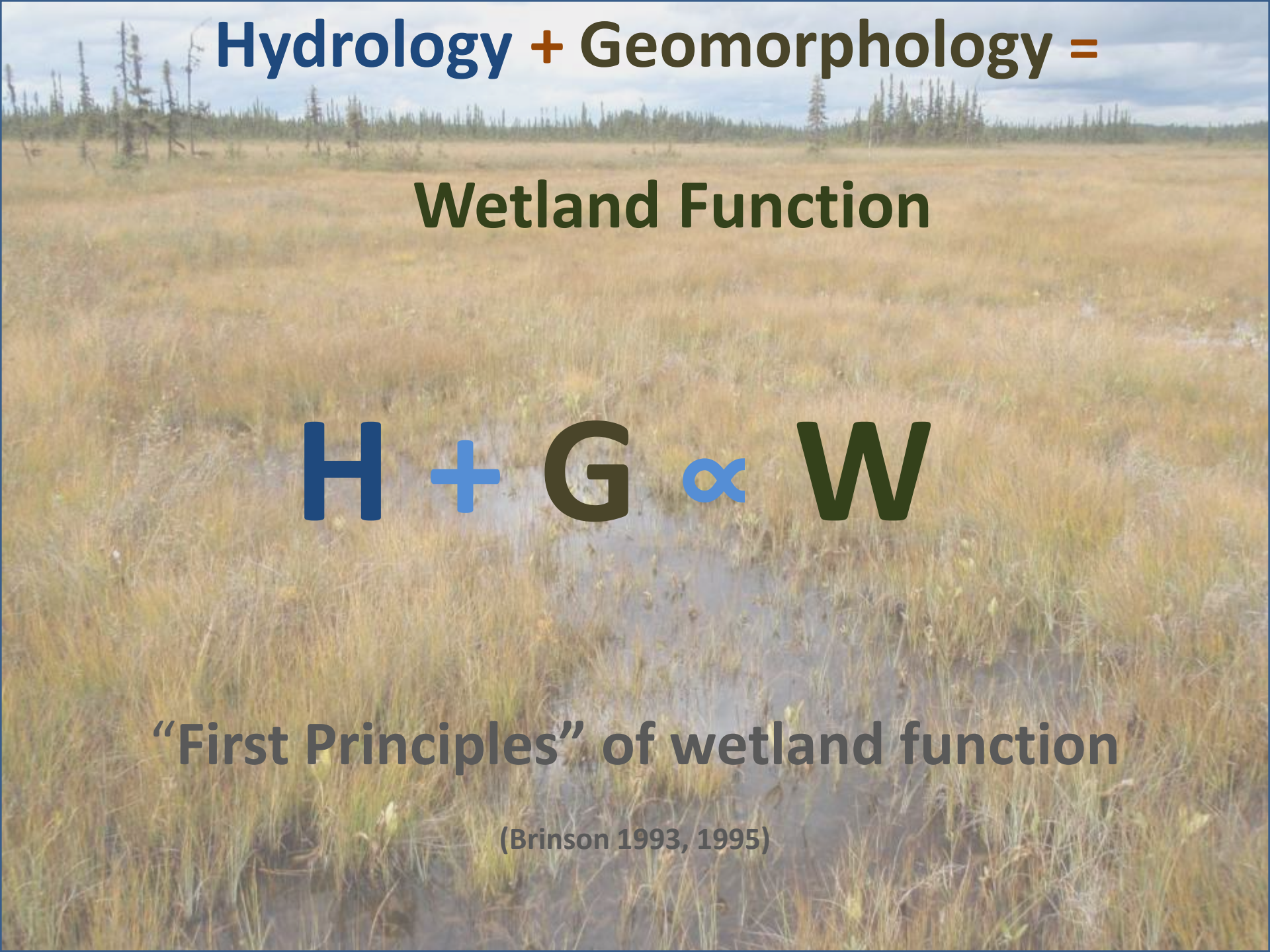




Year	Area	N polygons	Acres Wetland
2011	1,328,274	26,236	503,039
2012	1,584,738 (256,464)	29,874 (3639)	582,882 (79,843)
2013	1,875,344 (290,470)	35,353 (5476) ?	693,594 (107,430) ?
NWI	1,584,738	17,164 (57%)	365,101 (62%)



Year	Area	N polygons	Acres Wetland
2011	1,328,274	26,236	503,039
2012	1,584,738 (256,464)	29,874 (3639)	582,882 (79,843)
2013	1,875,344 (290,470)	35,353 (5476) ?	693,594 (107,430) ?
NWI	1,584,738	17,164 (57%)	365,101 (62%)


Hydrology + Geomorphology =
Wetland Function
H + G ∝ W
“First Principles” of wetland function
(Brinson 1993, 1995)

Miscellaneous Components

Type	Acres	Polygons	Peat?
LAKE	35,597	368	N
WETLAND / UPLAND	21,433	271	Y/N
DISTURB	1170	124	Y/N
TOTAL	**58,200 (10%)**	**763 (3%)**	

Miscellaneous Components

Type	Acres	Polygons	Peat?
LAKE	35,597	368	N
WETLAND / UPLAND	21,433	271	Y/N
DISTURB	1170	124	Y/N
TOTAL	**58,200 (10%)**	**763 (3%)**	

Minor Geomorphic Components

Type	Acres	Polygons	Peat?
TIDAL*	11,127	453	Y/N
TIDAL / DRAINAGEWAY*	9052	268	Y
LATE SNOW PLATEAU[K]	4921	25	N
VLD TROUGH[M]	4136	316	Y
HEADWATER FEN	3421	426	Y
SPRING FEN[M]	2645	460	Y
FLOATING ISLAND[K]	36	7	Y
TOTAL	**35,338 (6%)**	**1955 (7%)**	

*Tidally-influenced wetlands comprise 3% of wetlands mapped
[K]Found on the Kenai Peninsula only
[M]found in the Mat-Su Borough only

Minor Geomorphic Components

Type	Acres	Polygons	Peat?
TIDAL*	11,127	453	Y/N
TIDAL / DRAINAGEWAY*	9052	268	Y
LATE SNOW PLATEAU[K]	4921	25	N
VLD TROUGH[M]	4136	316	Y
HEADWATER FEN	3421	426	Y
SPRING FEN[M]	2645	460	Y
FLOATING ISLAND[K]	36	7	Y
TOTAL	**35,338 (6%)**	**1955 (7%)**	

*Tidally-influenced wetlands comprise 3% of wetlands mapped
[K]Found on the Kenai Peninsula only
[M]found in the Mat-Su Borough only

Minor Geomorphic Components

Type	Acres	Polygons	Peat?
TIDAL*	11,127	453	Y/N
TIDAL / DRAINAGEWAY*	9052	268	Y
LATE SNOW PLATEAU[K]	4921	25	N
VLD TROUGH[M]	4136	316	Y
HEADWATER FEN	3421	426	Y
SPRING FEN[M]	2645	460	Y
FLOATING ISLAND[K]	36	7	Y
TOTAL	**35,338 (6%)**	**1955 (7%)**	

*Tidally-influenced wetlands comprise 3% of wetlands mapped
[K]Found on the Kenai Peninsula only
[M]found in the Mat-Su Borough only

Major Geomorphic Components

Type	Acres	Polygons	Peat?
LAKEBED	129,218	4777	Y
RIVERINE	103,499	2896	N
DISCHARGE SLOPE	101,061	4758	N
KETTLE	77,911	7445	Y
DRAINAGEWAY	61,214	3322	Y
DEPRESSION	16,018	3950	Y
TOTAL	488,921 (84%)	27148 (91%)	49%

Major Geomorphic Components

Type	Acres	Polygons	Peat?
LAKEBED	129,218	4777	Y
RIVERINE	103,499	2896	N
DISCHARGE SLOPE	101,061	4758	N
KETTLE	77,911	7445	Y
DRAINAGEWAY	61,214	3322	Y
DEPRESSION	16,018	3950	Y
TOTAL	488,921 (84%)	27148 (91%)	49%

Major Geomorphic Components

Type	Acres	Polygons	Peat?
LAKEBED	129,218	4777	Y
RIVERINE	103,499	2896	N
DISCHARGE SLOPE	101,061	4758	N
KETTLE	77,911	7445	Y
DRAINAGEWAY	61,214	3322	Y
DEPRESSION	16,018	3950	Y
TOTAL	488,921 (84%)	27148 (91%)	49%

Major Geomorphic Components

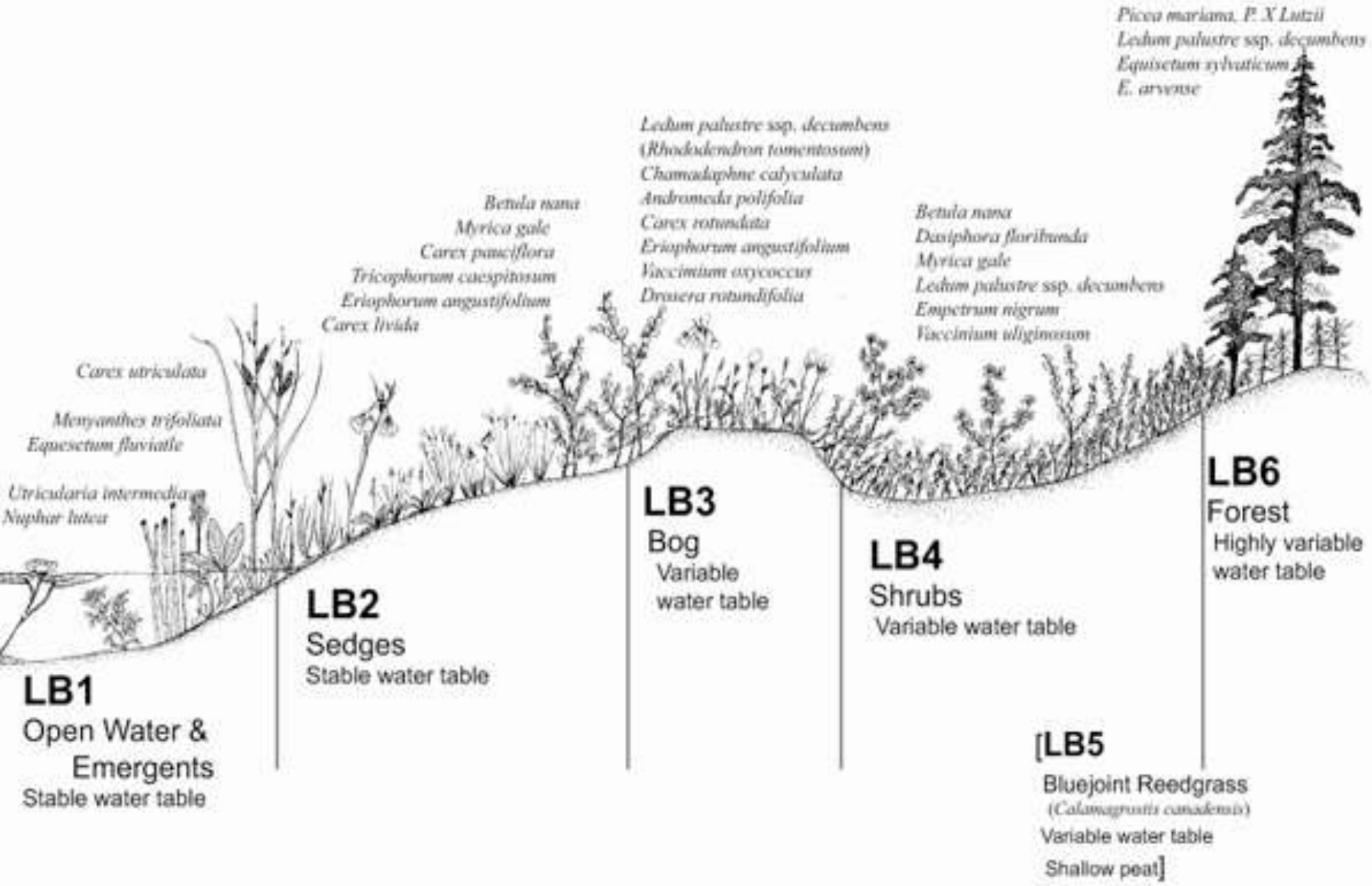
Type	Acres	Polygons	Peat?
LAKEBED	129,218	4777	Y
RIVERINE	103,499	2896	N
DISCHARGE SLOPE	101,061	4758	N
KETTLE	77,911	7445	Y
DRAINAGEWAY	61,214	3322	Y
DEPRESSION	16,018	3950	Y
TOTAL	488,921 (84%)	27148 (91%)	49%

Major Geomorphic Components

Type	Acres	Polygons	Peat?
LAKEBED	129,218	4777	Y
RIVERINE	103,499	2896	N
DISCHARGE SLOPE	101,061	4758	N
KETTLE	77,911	7445	Y
DRAINAGEWAY	61,214	3322	Y
DEPRESSION	16,018	3950	Y
TOTAL	488,921 (84%)	27148 (91%)	49%

LAKEBEDS 22%

RELICT GLACIAL LAKEBED HYDROLOGIC COMPONENTS



Artwork by Conrad Field

RIVERINE 18%

Riverine Systems

Modified Rosgen Type	Acres	Polygons	% Riverine
"E" Streams	**33,597**	**979**	**33**
Bankfull "E" streams: Re-b	9674	232	10
Sinuous "E" streams: Re-s	8734	100	9
Linear "E" Streams: Re-l	8249	237	8
"C" Streams: RC	**25,375**	**34**	**25**
"B" Streams: RB	**20,299**	**1027**	**20**
Braided Systems: RD	**14,465**	**375**	**14**
TOTAL	**101,061 (17%)**	**2896 (10%)**	

Riverine Systems

Modified Rosgen Type	Acres	Polygons	% Riverine
"E" Streams	**33,597**	**979**	**33**
Bankfull "E" streams: Re-b	9674	232	10
Sinuous "E" streams: Re-s	8734	100	9
Linear "E" Streams: Re-l	8249	237	8
"C" Streams: RC	**25,375**	**34**	**25**
"B" Streams: RB	**20,299**	**1027**	**20**
Braided Systems: RD	**14,465**	**375**	**14**
TOTAL	**101,061 (17%)**	**2896 (10%)**	

E Streams: (33%)

"Evolutionary"

On deposits of larger processes:

- Glaciers

E Streams: (33%)

"Evolutionary"

On deposits of

larger processes:

- Glaciers

E Streams: (33%)

"Evolutionary"

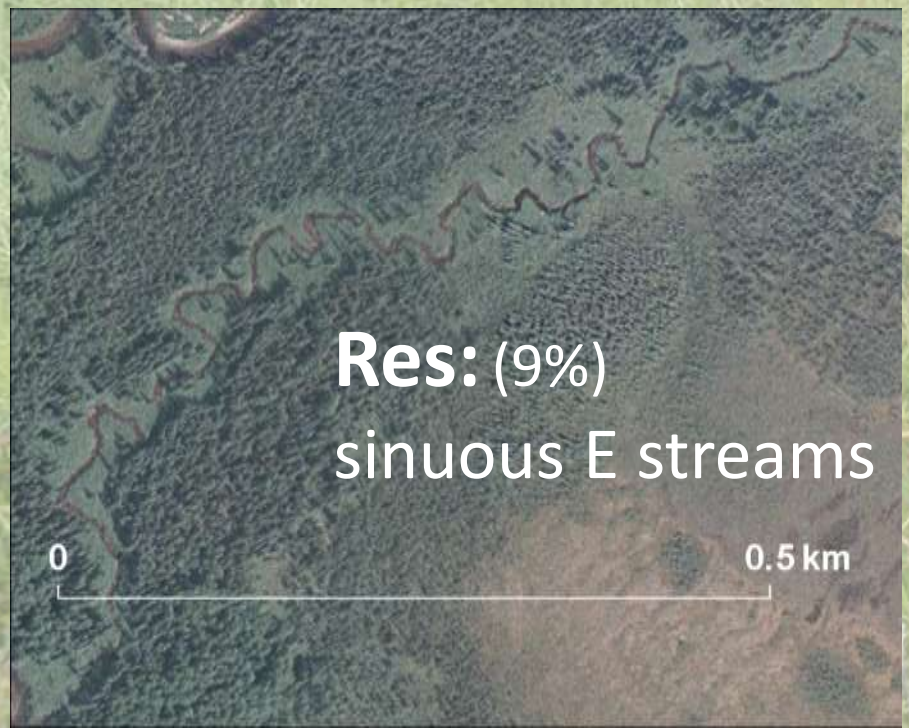
On deposits of

larger processes:

•Glaciers

Reb: (10%)

bankfull E streams: beavers



Res: (9%)

sinuous E streams

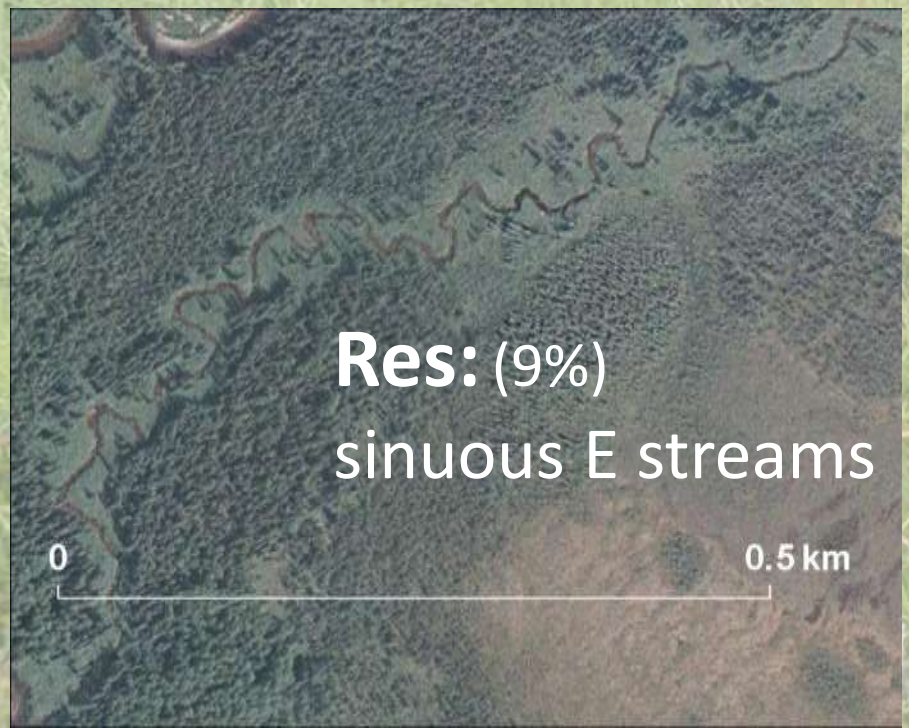
E Streams: (33%)

"Evolutionary"

On deposits of

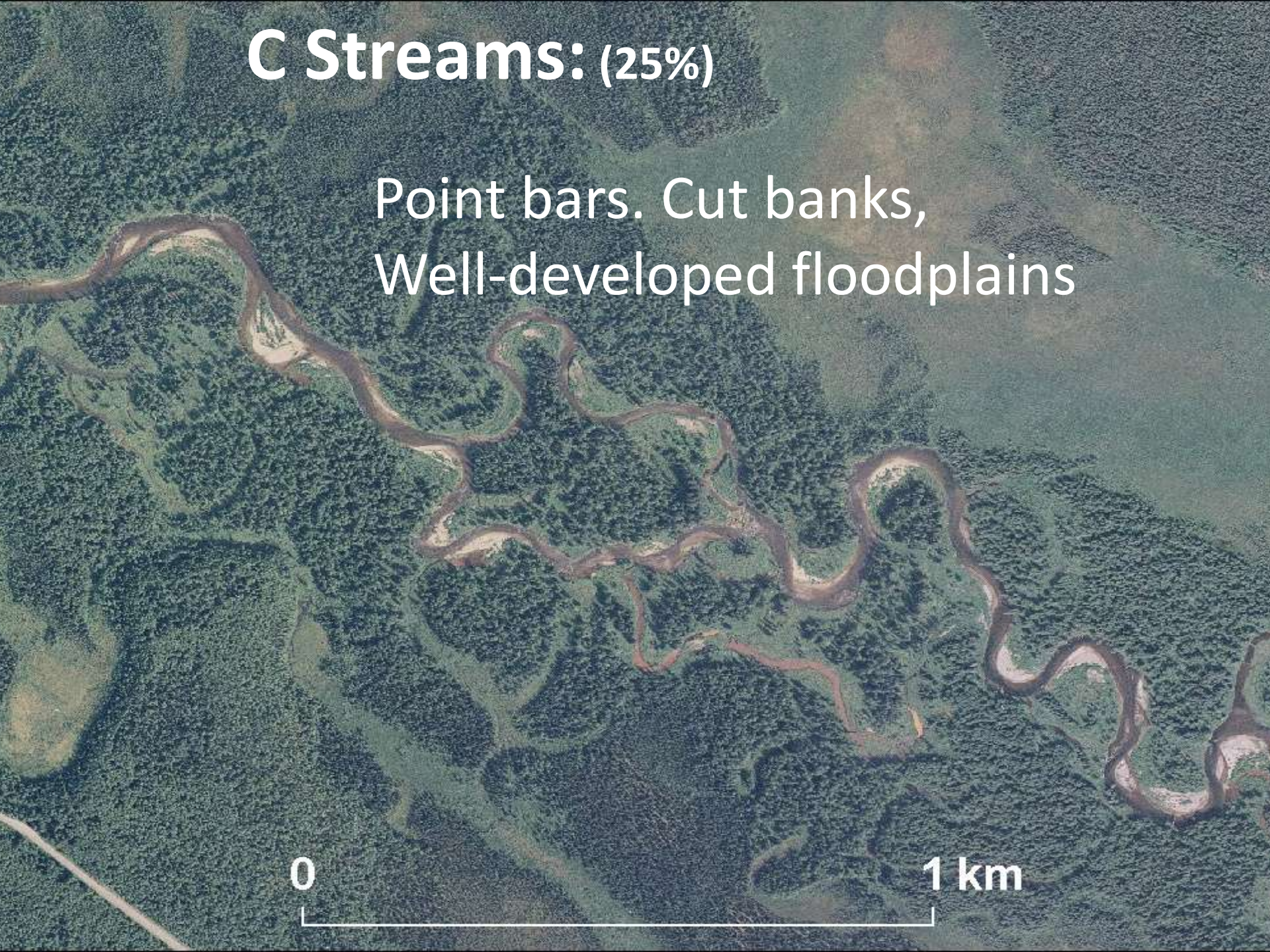
larger processes:

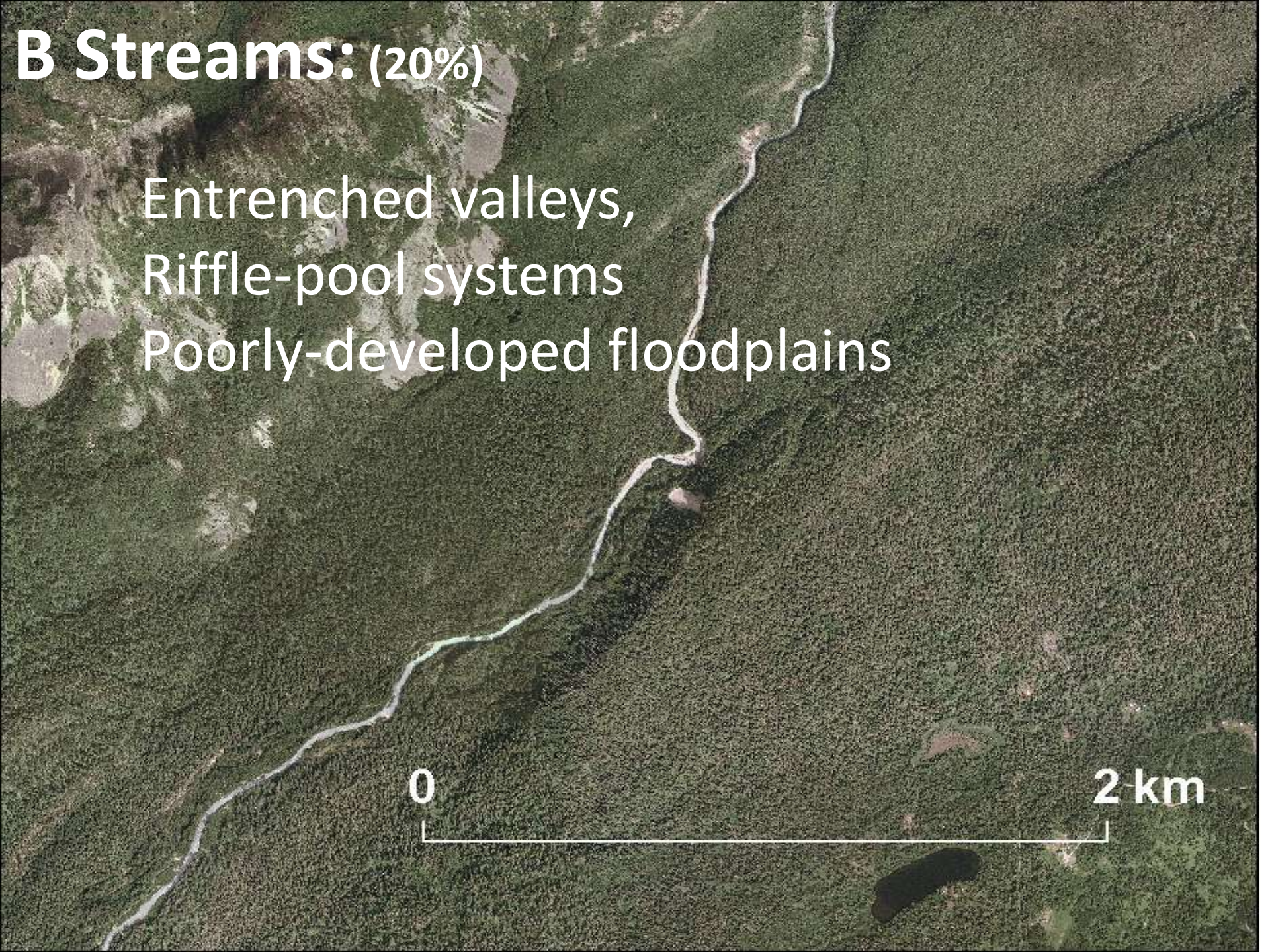
- Glaciers



Riverine Systems

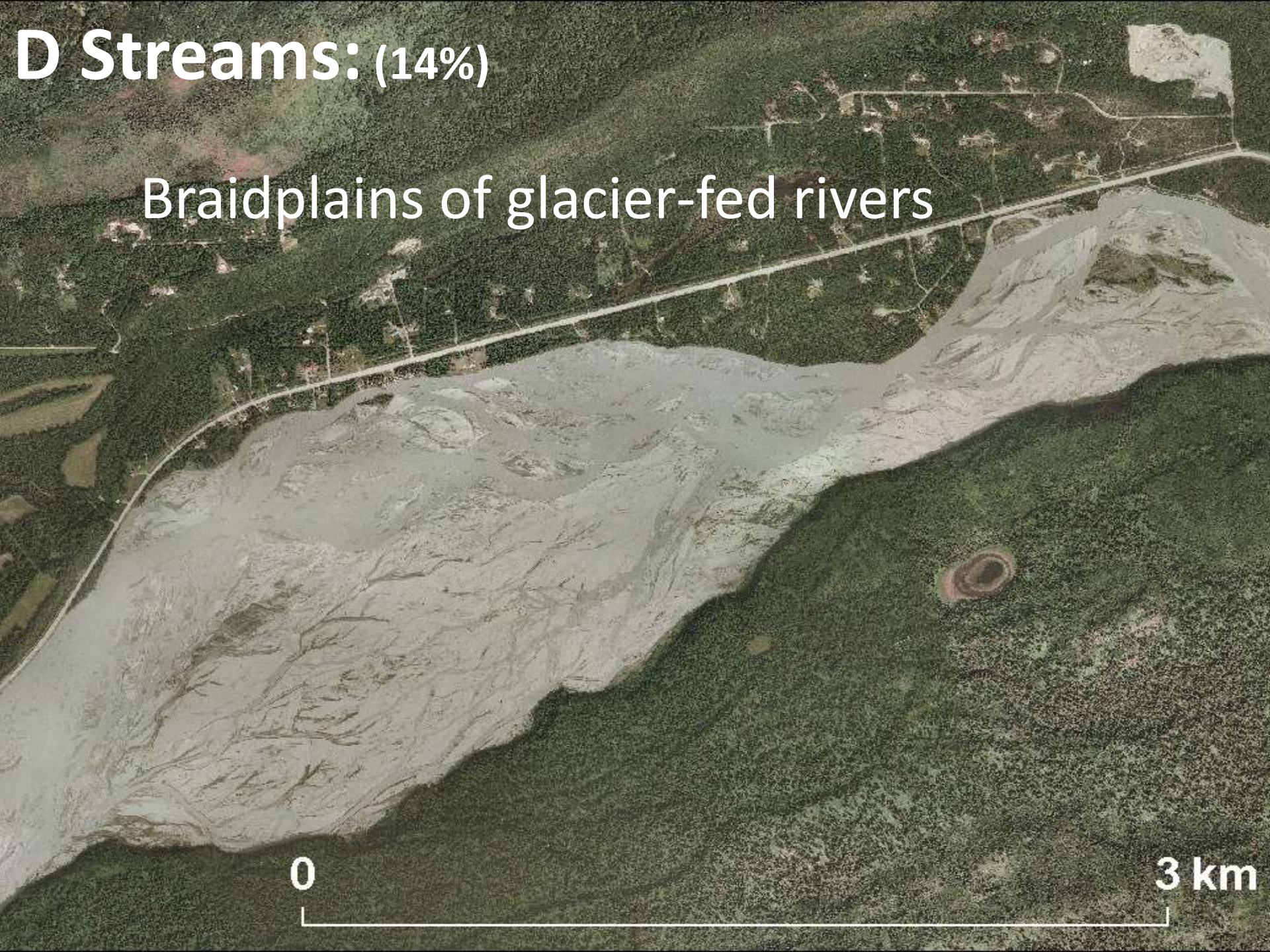
Modified Rosgen Type	Acres	Polygons	% Riverine
"E" Streams	**33,597**	**979**	**33**
Bankfull "E" streams: Re-b	9674	232	10
Sinuous "E" streams: Re-s	8734	100	9
Linear "E" Streams: Re-l	8249	237	8
"C" Streams: RC	**25,375**	**34**	**25**
"B" Streams: RB	**20,299**	**1027**	**20**
Braided Systems: RD	**14,465**	**375**	**14**
TOTAL	**101,061 (17%)**	**2896 (10%)**	


C Streams: (25%)
Point bars. Cut banks,
Well-developed floodplains
0
1 km


B Streams: (20%)
Entrenched valleys,
Riffle-pool systems
Poorly-developed floodplains
0
2 km

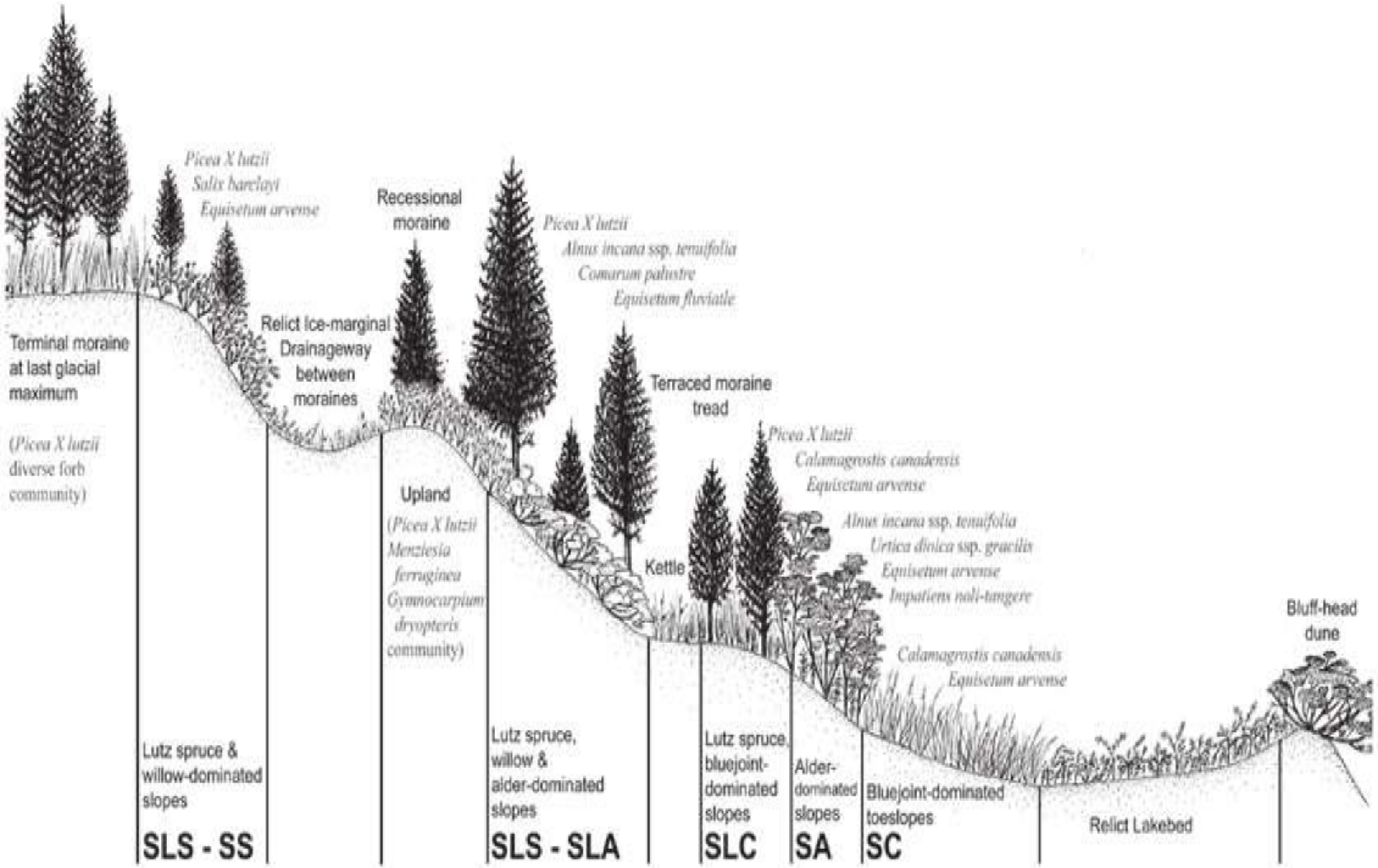
D Streams: (14%)

Braidplains of glacier-fed rivers



Discharge Slopes (17%)

DISCHARGE SLOPE VEGETATION COMPONENTS

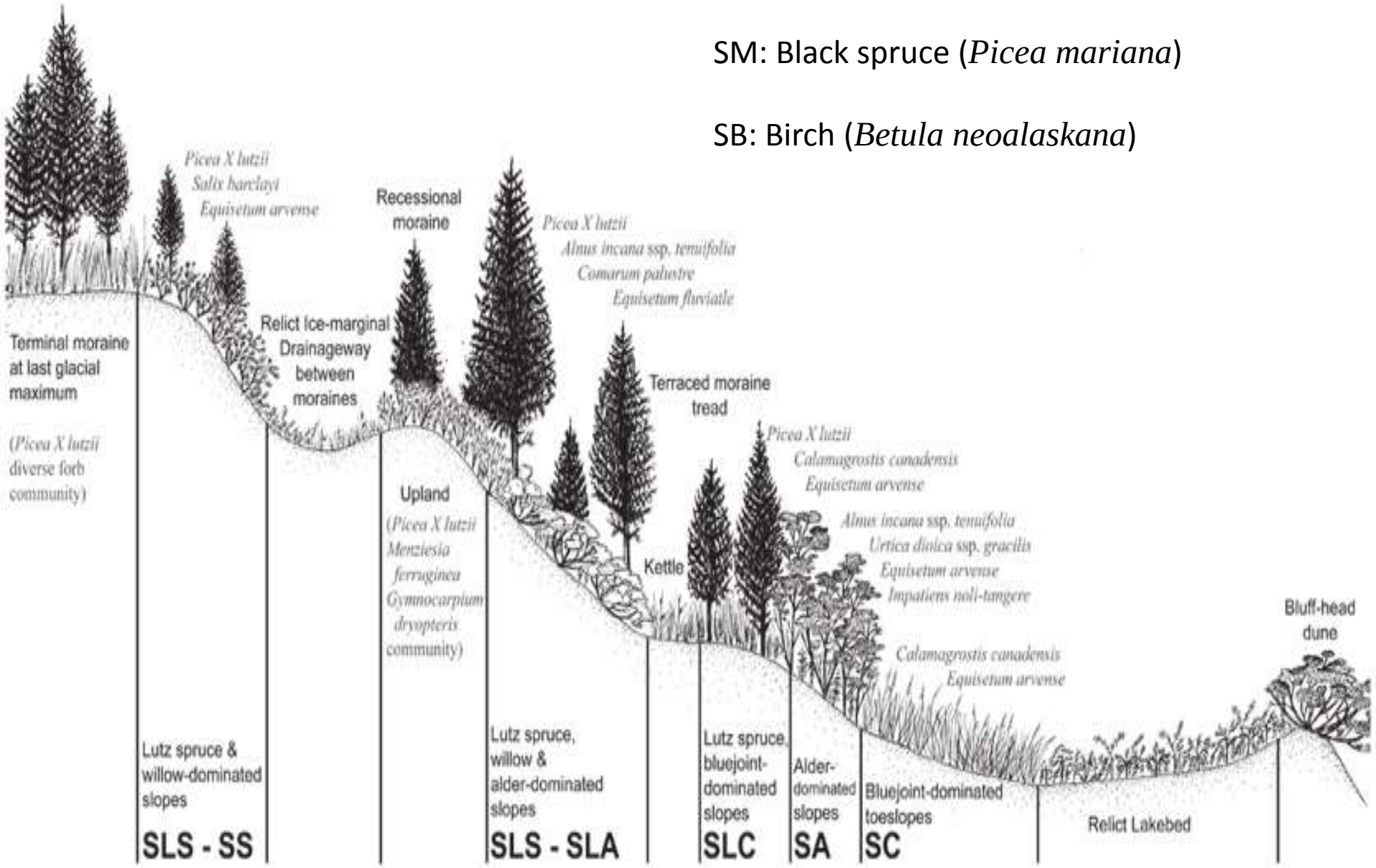


Artwork by Conrad Field

DISCHARGE SLOPE VEGETATION COMPONENTS

SM: Black spruce (*Picea mariana*)

SB: Birch (*Betula neoalaskana*)

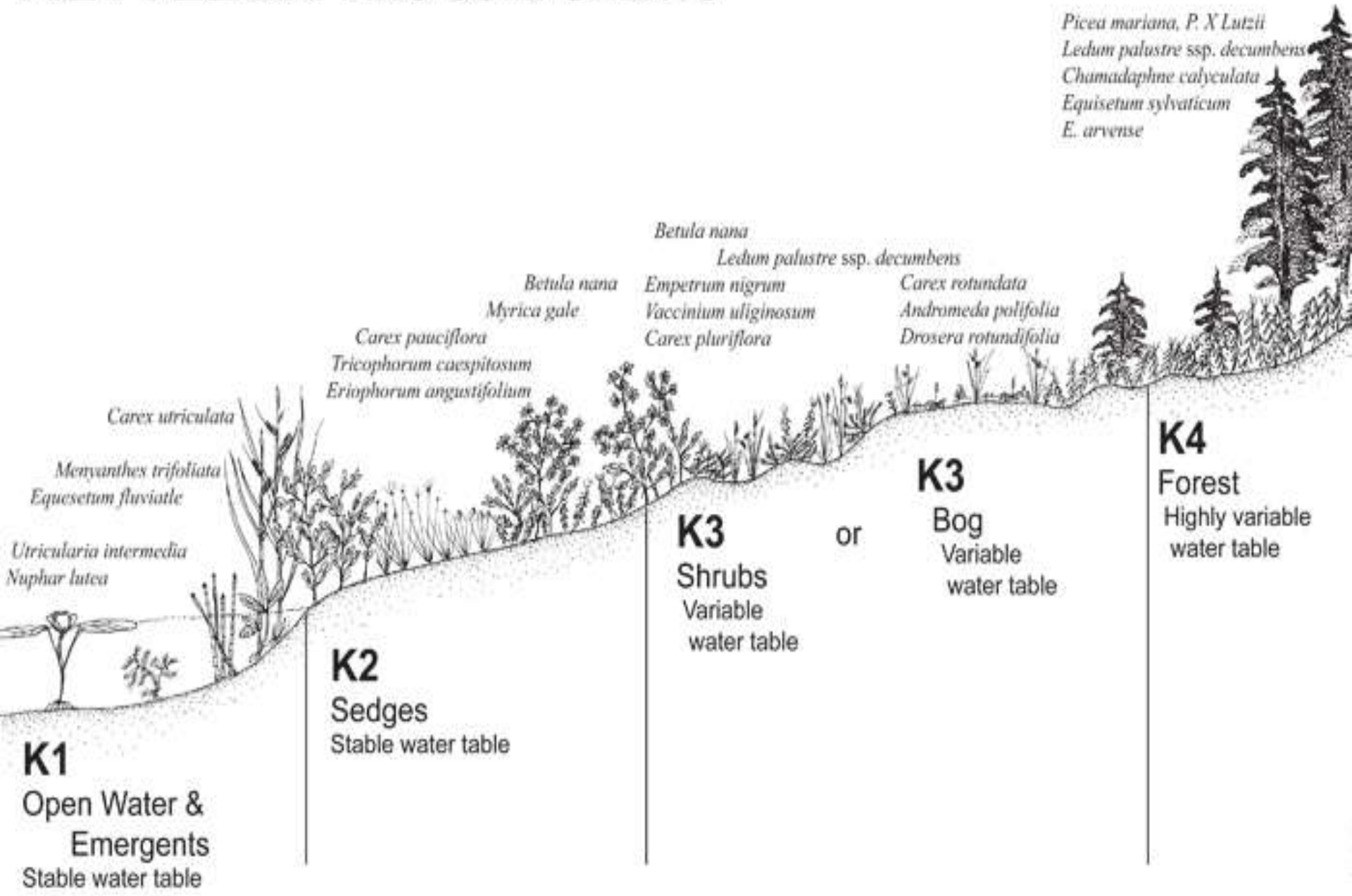


Artwork by Conrad Field

Major Geomorphic Components

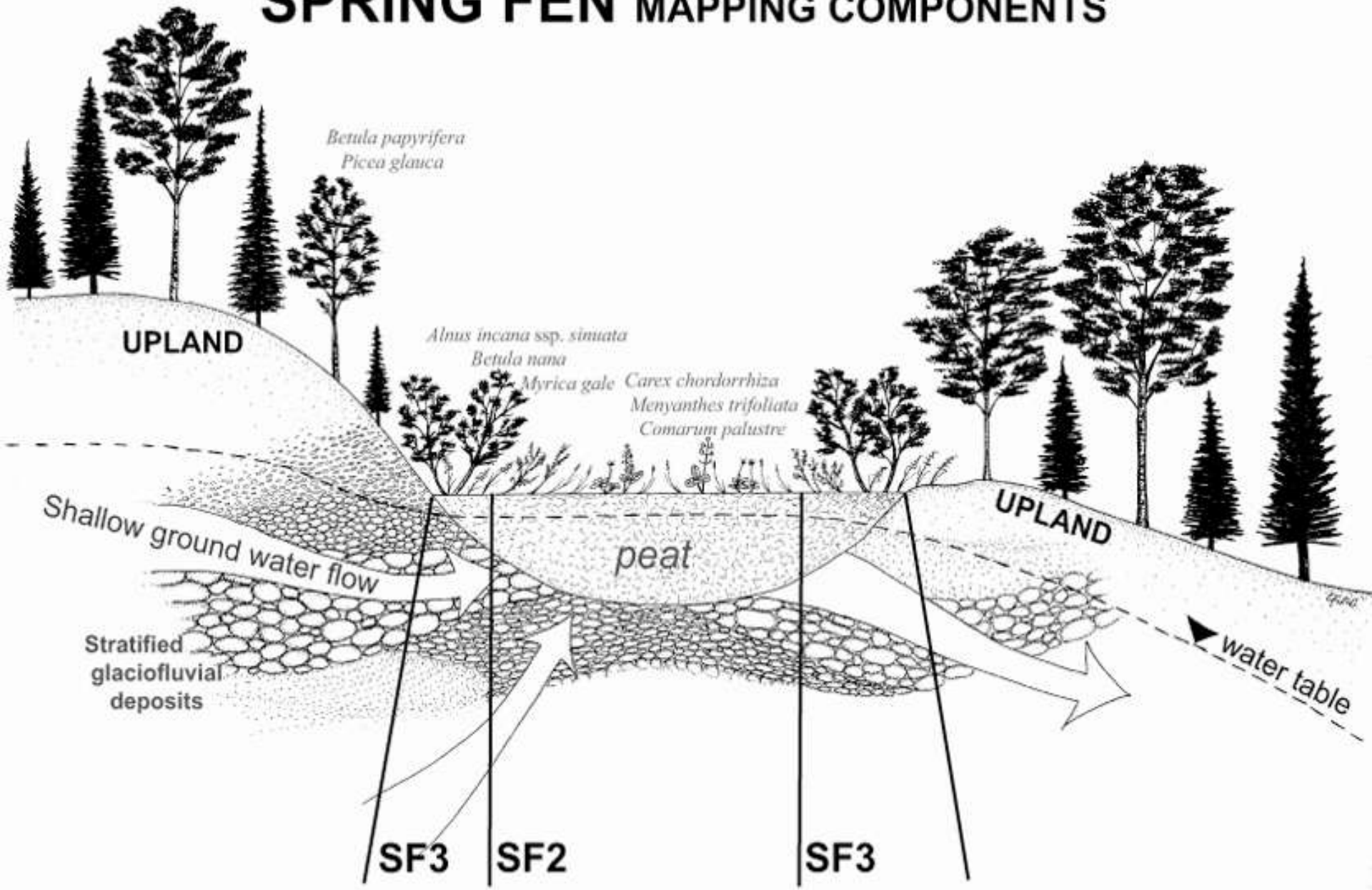
Type	Acres	Polygons	Peat?
LAKEBED	129,218	4777	Y
RIVERINE	103,499	2896	N
DISCHARGE SLOPE	101,061	4758	N
KETTLE	77,911	7445	Y
DRAINAGEWAY	61,214	3322	Y
DEPRESSION	16,018	3950	Y
TOTAL	488,921 (84%)	27148 (91%)	49%

KETTLE MAPPING COMPONENTS

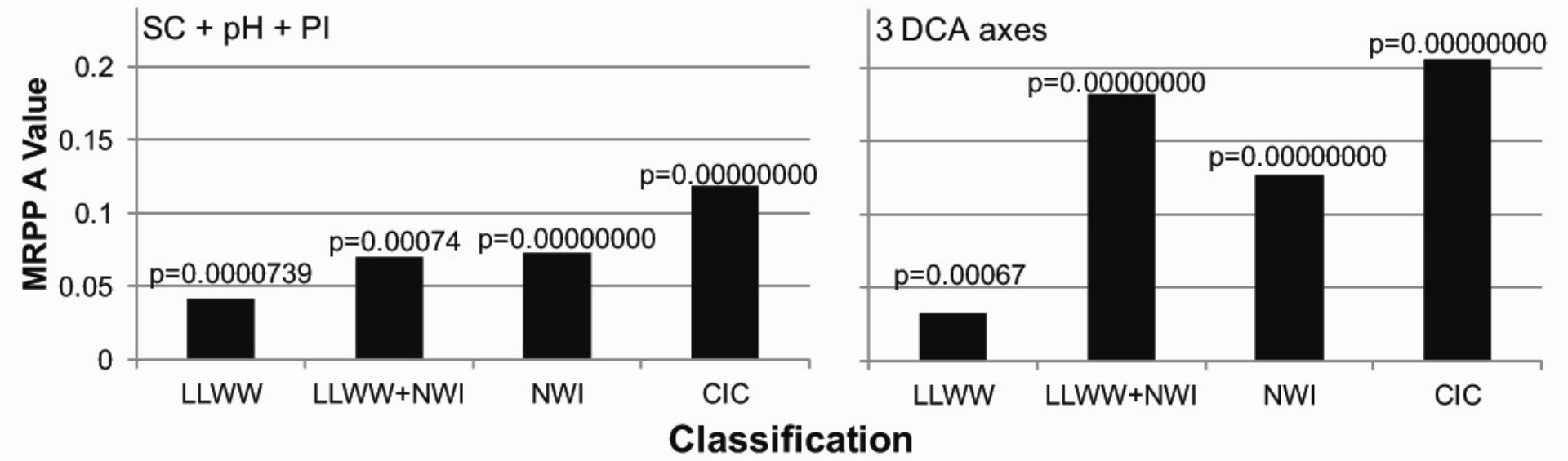


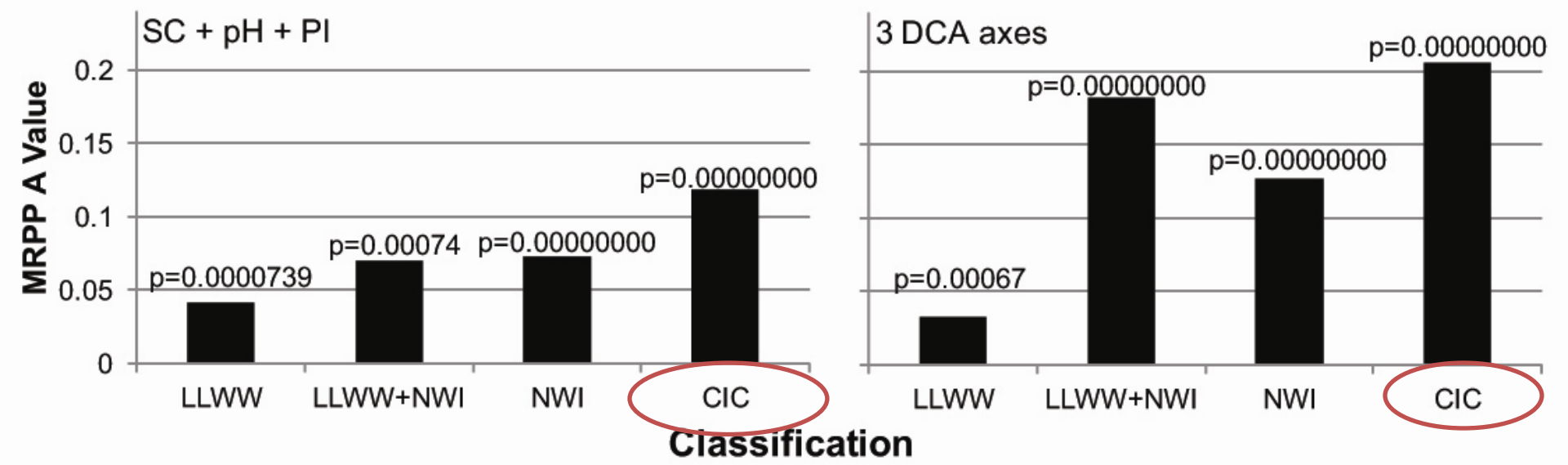
Artwork by Conrad Field

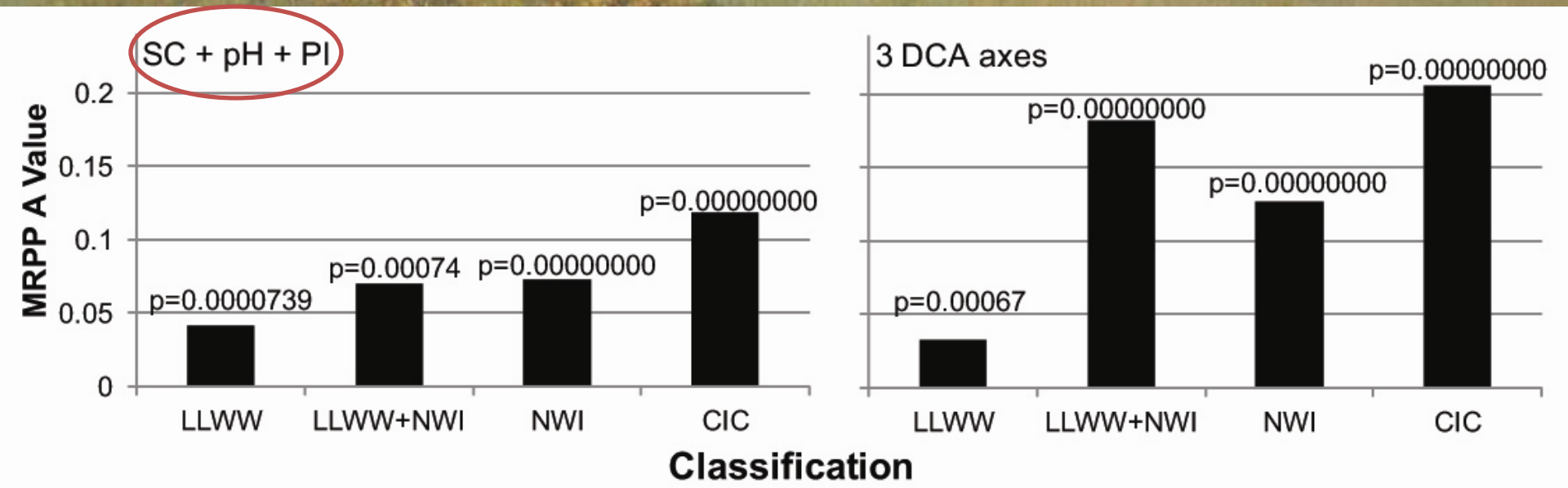
SPRING FEN MAPPING COMPONENTS

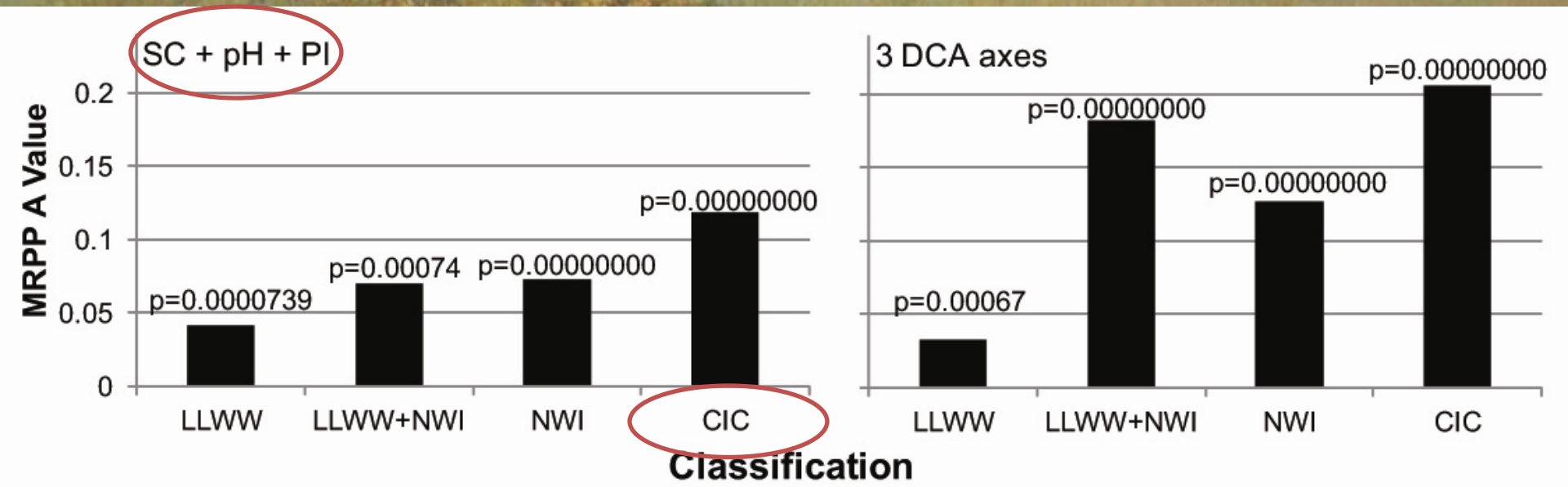


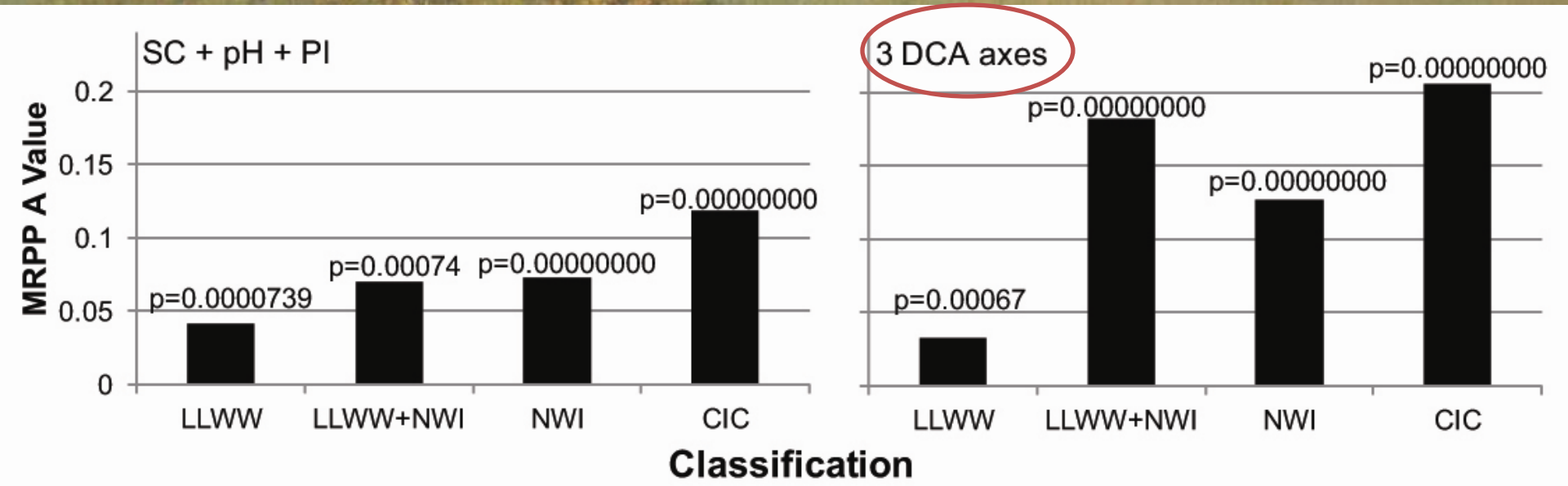
Artwork by Conrad Field

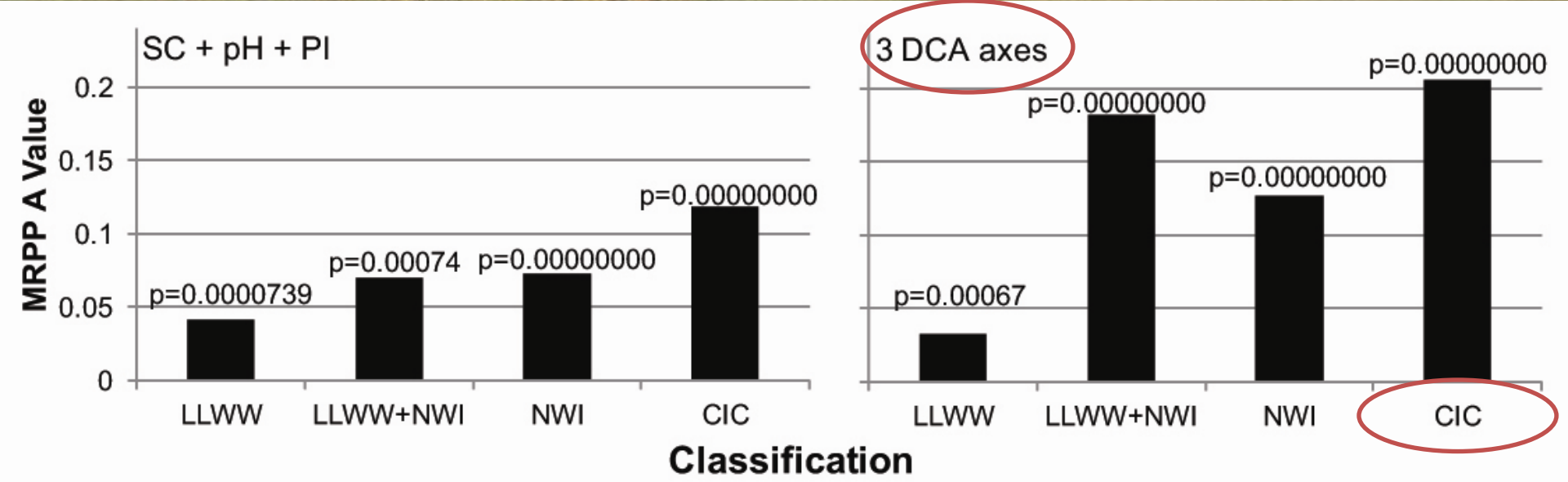

SC + pH + PI
MRPP A Value
0.2
0.15
0.1
0.05
0
p=0.0000739
p=0.00074
p=0.00000000
p=0.00000000
LLWW
LLWW+NWI
NWI
CIC
3 DCA axes
p=0.00067
p=0.00000000
p=0.00000000
p=0.00000000
LLWW
LLWW+NWI
NWI
CIC
Classification


SC + pH + PI
MRPP A Value
0.2
0.15
0.1
0.05
0
p=0.0000739
p=0.00074
p=0.00000000
p=0.00000000
LLWW
LLWW+NWI
NWI
CIC
3 DCA axes
p=0.00067
p=0.00000000
p=0.00000000
p=0.00000000
LLWW
LLWW+NWI
NWI
CIC
Classification

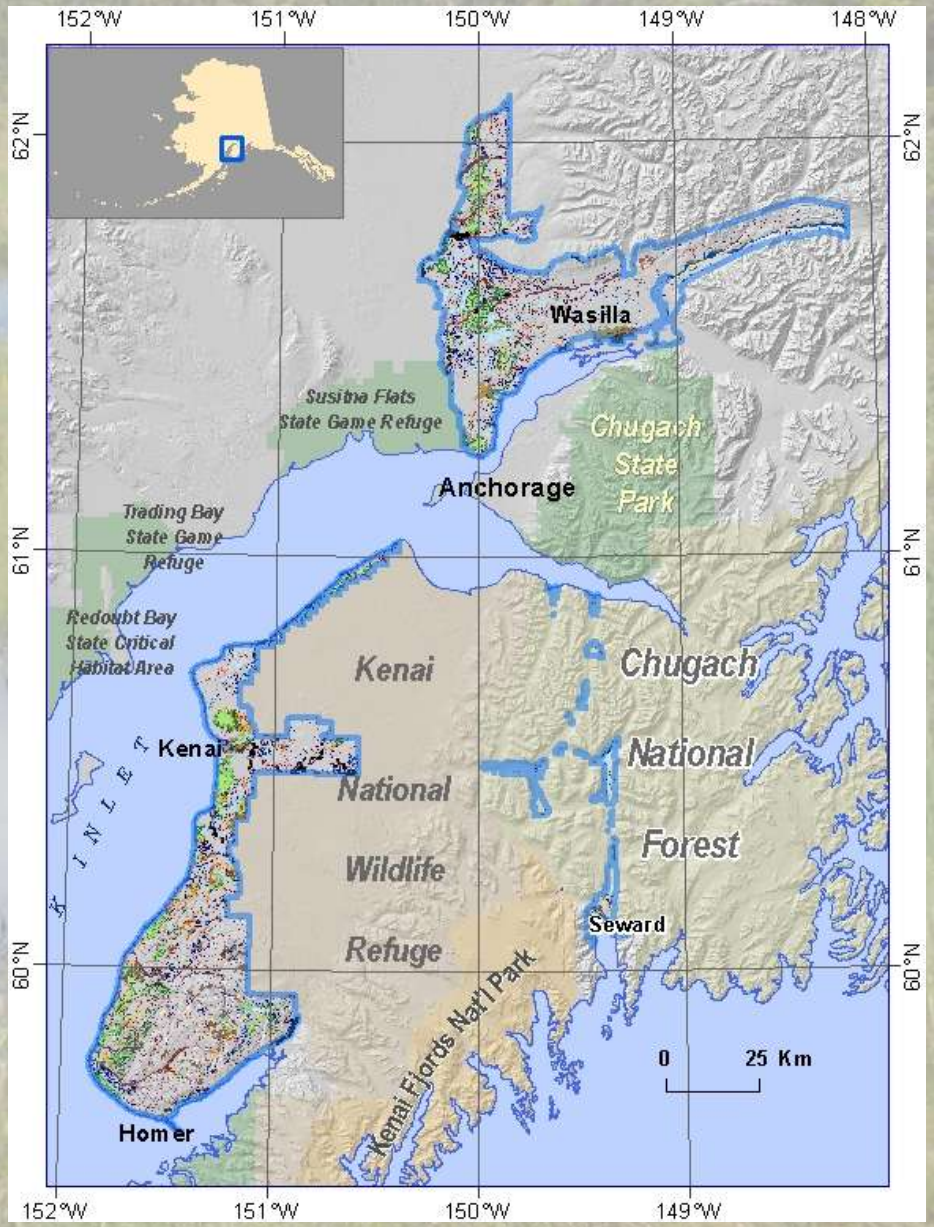

SC + pH + PI
MRPP A Value
0.2
0.15
0.1
0.05
0
p=0.0000739
p=0.00074
p=0.00000000
p=0.00000000
LLWW
LLWW+NWI
NWI
CIC
3 DCA axes
p=0.00067
p=0.00000000
p=0.00000000
p=0.00000000
LLWW
LLWW+NWI
NWI
CIC
Classification


SC + pH + PI
MRPP A Value
0.2
0.15
0.1
0.05
0
p=0.0000739
p=0.00074
p=0.00000000
p=0.00000000
LLWW
LLWW+NWI
NWI
CIC
3 DCA axes
p=0.00067
p=0.00000000
p=0.00000000
p=0.00000000
LLWW
LLWW+NWI
NWI
CIC
Classification


SC + pH + PI
MRPP A Value
0.2
0.15
0.1
0.05
0
p=0.0000739
p=0.00074
p=0.00000000
p=0.00000000
LLWW
LLWW+NWI
NWI
CIC
3 DCA axes
p=0.00067
p=0.00000000
p=0.00000000
p=0.00000000
LLWW
LLWW+NWI
NWI
CIC
Classification


SC + pH + PI
MRPP A Value
0.2
0.15
0.1
0.05
0
p=0.0000739
p=0.00074
p=0.00000000
p=0.00000000
LLWW
LLWW+NWI
NWI
CIC
3 DCA axes
p=0.00067
p=0.00000000
p=0.00000000
p=0.00000000
LLWW
LLWW+NWI
NWI
CIC
Classification

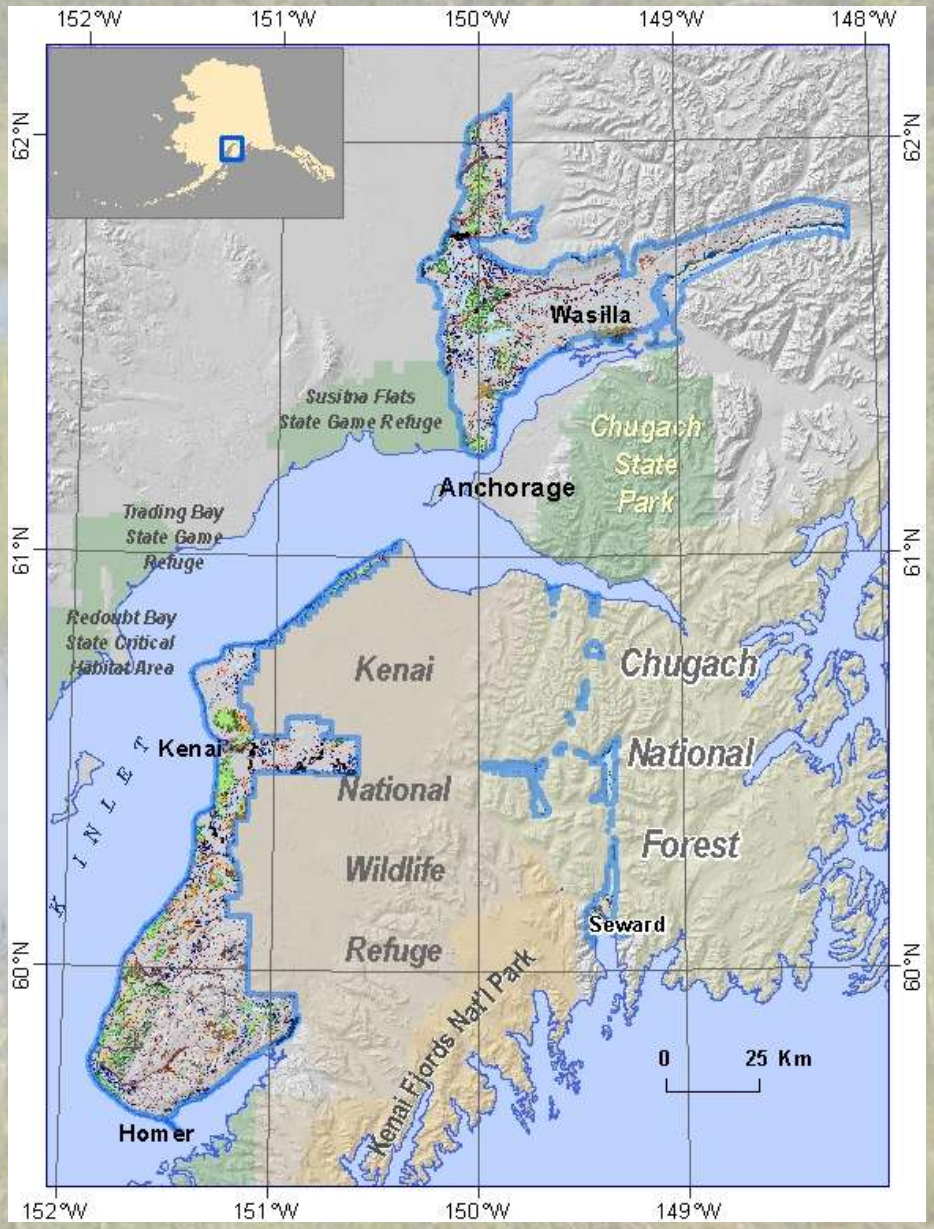
Type	Acres	Polygons	Peat?
LAKEBED	129,218	4777	Y
RIVERINE	103,499	2896	N
DISCHARGE SLOPE	101,061	4758	N
KETTLE	77,911	7445	Y
DRAINAGEWAY	61,214	3322	Y
DEPRESSION	16,018	3950	Y
TOTAL	488,921 (84%)	27148 (91%)	49%



Large portion = Vast peatlands

Unlike lower 48

Type	Acres	Polygons	Peat?
LAKEBED	129,218	4777	Y
RIVERINE	103,499	2896	N
DISCHARGE SLOPE	101,061	4758	N
KETTLE	77,911	7445	Y
DRAINAGEWAY	61,214	3322	Y
DEPRESSION	16,018	3950	Y
TOTAL	488,921 (84%)	27148 (91%)	49%



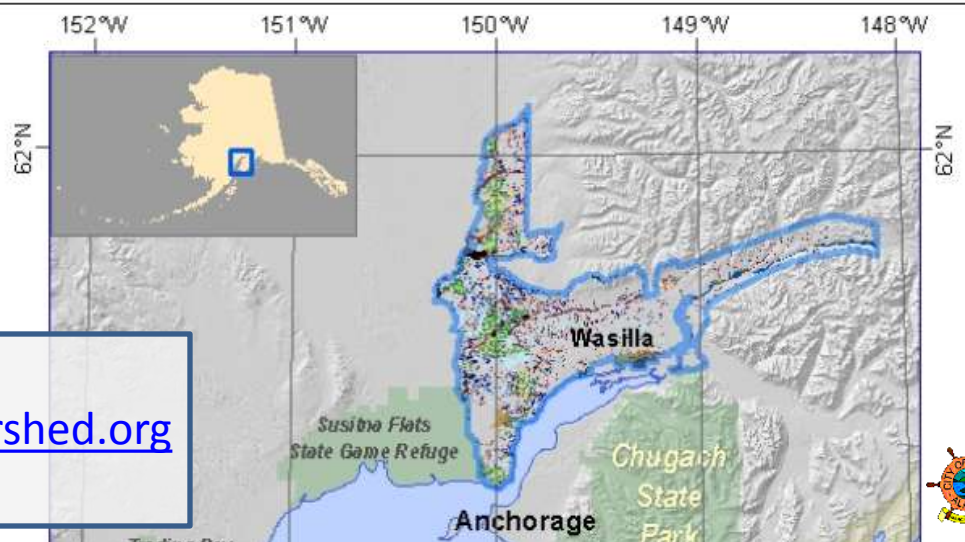
Cookinletwetlands.info

Cook Inlet Wetlands

Many wetlands in the Cook Inlet lowlands, Alaska have been classified and mapped as part of an ongoing project to better manage these valuable resources. Areas covered include the western Kenai Peninsula, the area around Seward, non-Chugach National Forest lands in the Kenai Mountains, and the most populous areas of the Matanuska-Susitna Valley.

You can view these maps in GoogleEarth by downloading a file (16 MB, .kmz format) or linking to it over the web. Click on GoogleEarth, below for more information. In the Kenai Peninsula Borough, you can view the maps along with current land ownership information at the Kenai Peninsula Borough's Geographic Information System website.

Site Search ☑ Search Cook Inlet Wetlands	FAQ	Mapping Information (Metadata)	Wetland Ecosystems	Technical	Shapefile Other Downloads GoogleEarth



Mike Gracz
Mike@kenaiwatershed.org
907-235-2218