

A photograph of a person in waders standing on a rocky riverbank, holding a tablet to take a picture of a river. The river is filled with large, smooth rocks and has a large pile of logs on the right bank. The background is a dense forest.

Cyborg Landscapes:

Relevance to River Restoration in the Context of Climate Change

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<http://www.thefreshwatertrust.org/case-study/sandy-river-basin-partnership/>

TOGETHER,
THEY'RE INDESTRUCTIBLE



RETURN OF

**THE
SIX MILLION
DOLLAR MAN
AND THE
BIONIC WOMAN**

UNIVERSAL

PG



Boston: Back Bay Fens, Frederick Law Olmsted -- begun in 1878



Highly artificial, eventually naturalistic -- Olmsted believed that a pastoral aesthetic was better for human health.



Olmsted's pastoral landscape getting a complete facelift 125+ years later (USACE photo 2015)

The “cyborg” term is useful because it introduces a less polarizing term, allows discussion without triggering dichotomies, maybe even a little humorous.



Public meeting regarding a dam in Boise, ID

Complex cyborg landscapes with mechanical parts often need maintenance – like any machine



Oroville Dam Spillway, CA

Complex cyborg landscapes with mechanical parts often need maintenance – like any machine



How is the idea of a
cyborg landscape
related to the idea of a
novel ecosystem
?

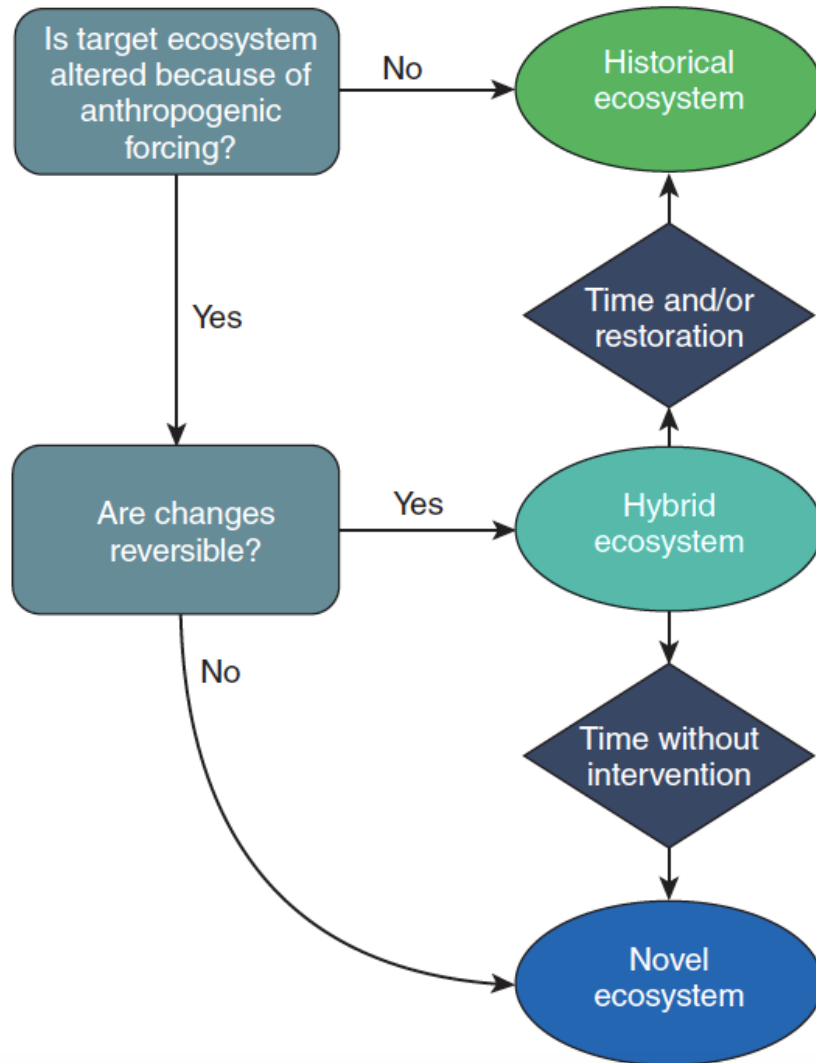
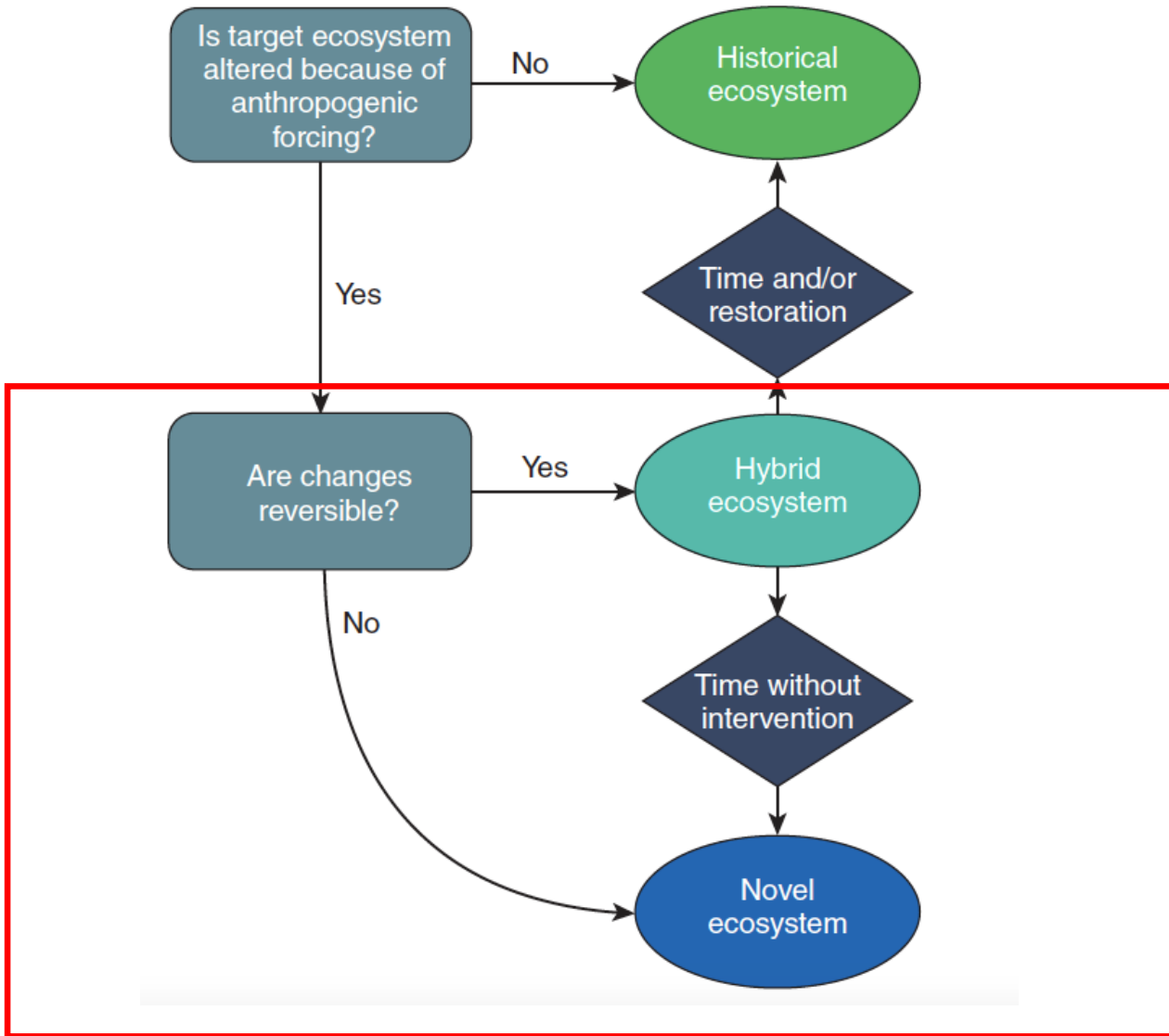
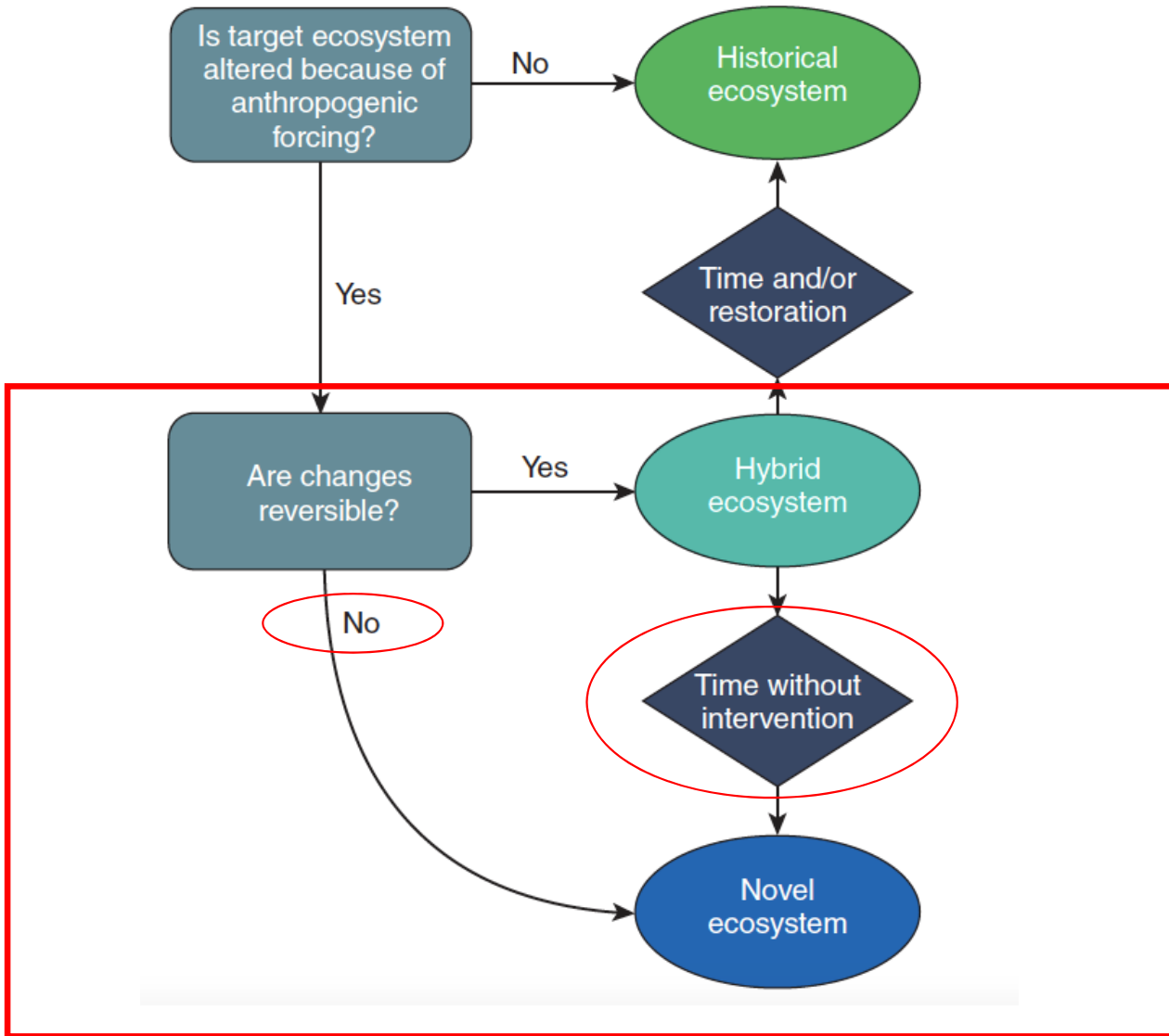
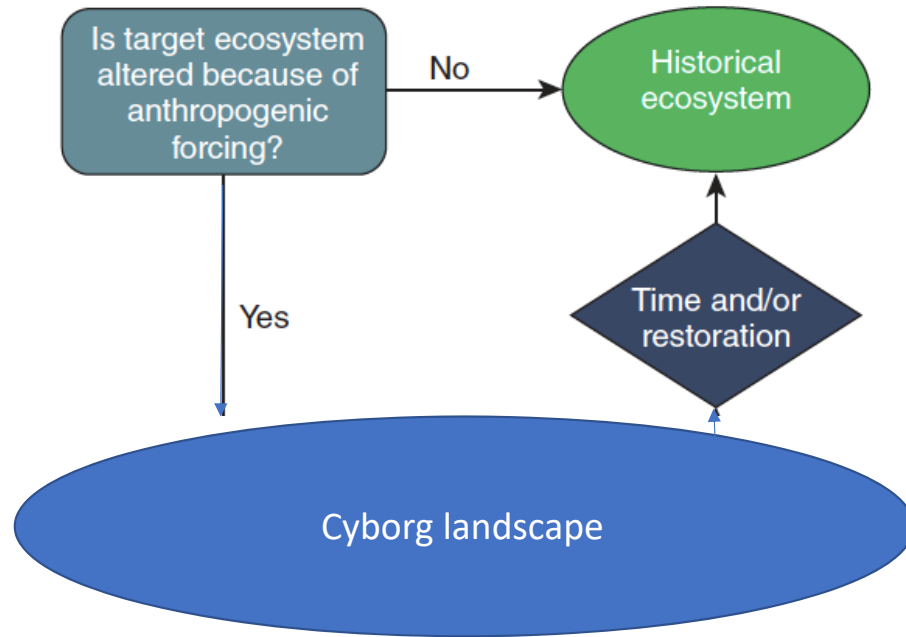


Figure from Hobbs, Higgs and Hall (2013)





Murcia et al 2014



Link to climate change context

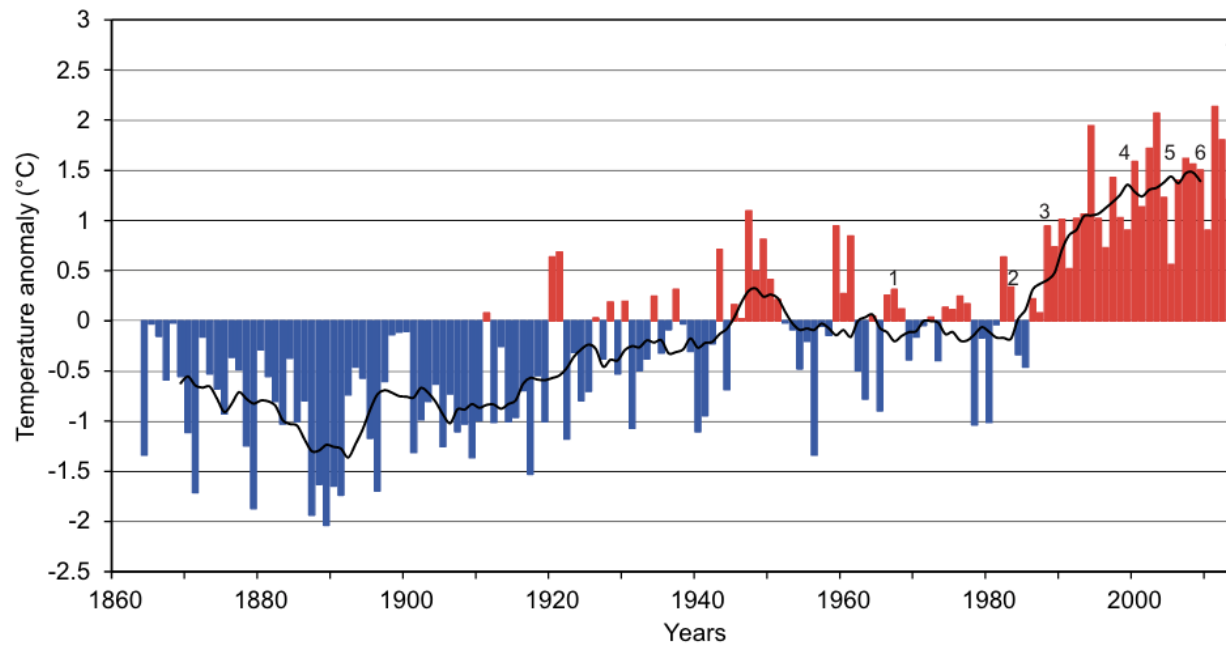


Figure 3. Mean Annual Air Temperature (MAAT) in Sion (24 km from Arolla) between 1864 and 2014 as deviation from the reference mean established between 1961 and 1990, with the 10 year moving average. The numbers signal the years with available aerial imagery. Data: Swiss Federal Office of Meteorology and Climatology MeteoSwiss (www.meteoswiss.admin.ch).

N. Micheletti and S. Lane, "Water yield and sediment export in small, partially glaciated Alpine watersheds in a warming climate," Water Resources Research, 2016.

Hypothesis:

The concept of a **cyborg landscape** can be used to reflect critically on the our intentions for appearance and perception in river and stream projects, without relying on dichotomies that trigger emotional reactions (natural vs. artificial, novel vs. historic).

It offers particular advantages in a time of human-caused **climate change**.

Urban-rural-wildland gradients of legibility



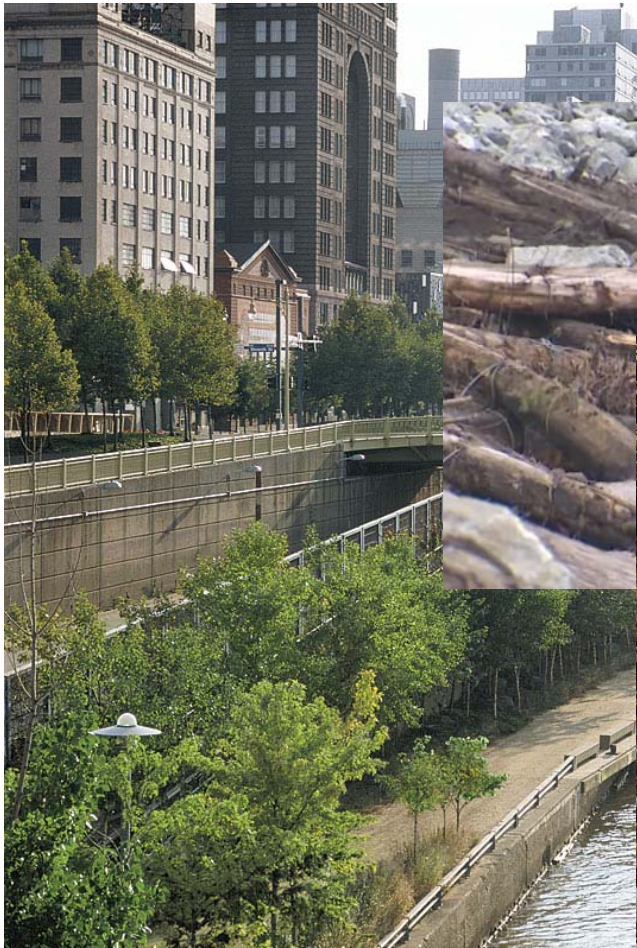
Allegheny Riverfront Park, Pittsburgh

Urban-rural-wildland gradients of legibility

Orting, WA – new Calistoga Levee



Urban-rural-wildland gradients of legibility



Engineered log jam, Still Creek, OR



Rural example



Gravel bars on the
Willamette River, OR

(D. Hulse, photo)

Wildland example



Carbon River Road
Mt. Rainier National Park, WA

(Washington Trails Association, photo)

Wildland example



Carbon River Road
Mt. Rainier National Park, WA

“...the more advanced a society is, the greater will be its interest in ruined things, for it will see in them a redemptively sobering reminder of the fragility of its own achievements.”

-Alain de Botton



(Washington Trails Association, photo)