

**FITNESS, NOT DIVERSITY,
GUIDES THE RECOVERY
PROCESS**

Combines Three Favorite Topics:

Fitness
Recovery Process
Patterns

Fitness Is as Fitness Does

What Proves to Work
In the Long Run

Recovery Process

Colonization or a Desired Shift in
Vegetational or Structural
Composition, as from Introduced
Weeds to Desired Perennials

VOLUMES OF DRIVEL WRITTEN ABOUT **THE RECOVERY PROCESS**

READ ROBERT McINTOSH'S 1980
article: **The relationship between
succession and the recovery process
in ecosystems.** pp. 11-62 IN: J. Cains,
ed. The recovery process in damaged
ecosystems. Ann Arbor Sci. Pub.

PATTERNS

SPATIAL PATTERNS

**For example, Revegetation Starts
in Draws and Drainages and
Spreads to Sideslopes**

TEMPORAL PATTERNS

WEEDS  PERENNIALS

or

PERENNIALS  NOXIOUS WEEDS

FIRST CASE HISTORY

COAL

CHEATGRASS 

WESTERN WHEATGRASS























































HOW?

WHICH TWO WORDS
ARE RELATED?

APPLE

ENGINEER

CHALET

HUBRIS



N17
-
FO1











ROSANA WESTERN WHEATGRASS

ORIGINATED FORSYTH MT 1959

RELEASED 1972 AS *ROSANA*

AGGRESSIVELY RHIZOMATOUS

PRODUCED TIGHTEST SOD





















SECOND CASE HISTORY

CLARK FORK FLOODPLAIN

SOUTH OF DEER LODGE

METAL-CONTAMINATED

IRRIGATION WATER









LAST CASE STUDY

SMELTER-IMPACTED

UPLANDS

SOUTHEAST OF FAIRMONT

SO₂ + METALS FUMIGATION
MAINLY WINTER INVERSIONS
FIRST HALF 20th CENTURY

 **DEFOLIATION**

 **DEATH OR SELECTION**

 **DIFFERENTIAL EROSION**

 **RECOVERY**





































ASSISTED RECOVERY





















C17
Real 19.04 Bnty

A FEW SPECIES
WESTERN WHEATGRASS
QUAKING ASPEN
REDTOP
ACCOUNTED FOR MOST
VEGETATIONAL RECOVERY IN
THREE AREAS IN MONTANA

IT'S NOT HOW MANY SPECIES

**IT'S HOW FIT THE
DRIVERS OF THE
RECOVERY PROCESS ARE**