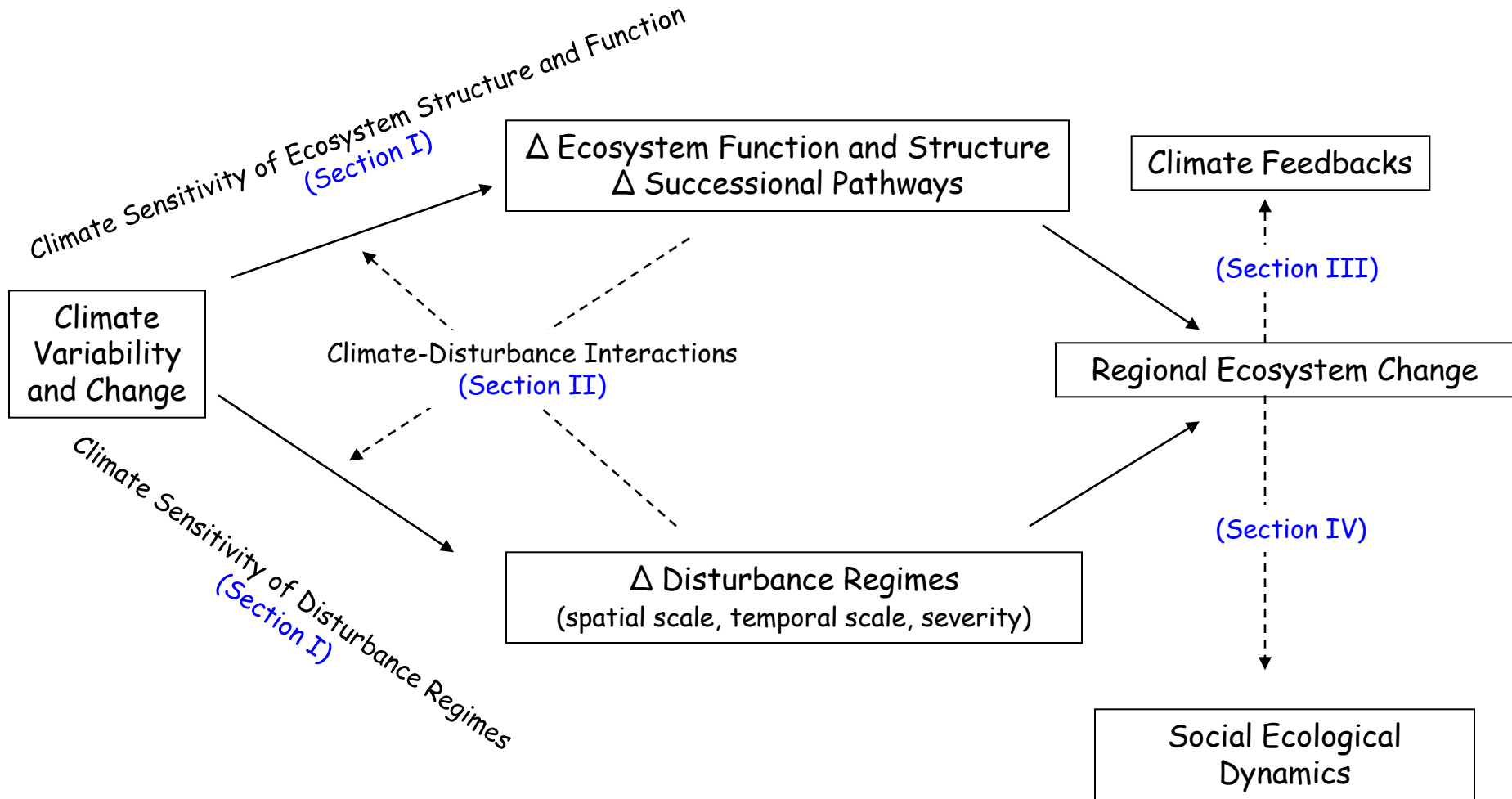


2010 BNZ LTER: "Regional Consequences of Changing Climate-Disturbance Interactions for the Resilience of Alaska's Boreal Forest"



Section I

Climate Variability
and Change

Direct Effects on Key Species & Functional Groups

C1: Site drainage and stand age influence climate sensitivity black spruce ecosystems

C2: Expanding understanding of spatial and temporal trends in climate sensitivity of NPP

C3: Manipulating spring soil moisture

C4: Vertebrate herbivore population dynamics

Direct effects on disturbance regimes

C5: Characteristics and controls over fire regimes

C6: Seasonal and interannual variation in permafrost

C7: Insect and pathogen outbreaks: historical patterns and recent responses to warming

Ecosystem Structure
& Function

Section III

Climate
Feedbacks

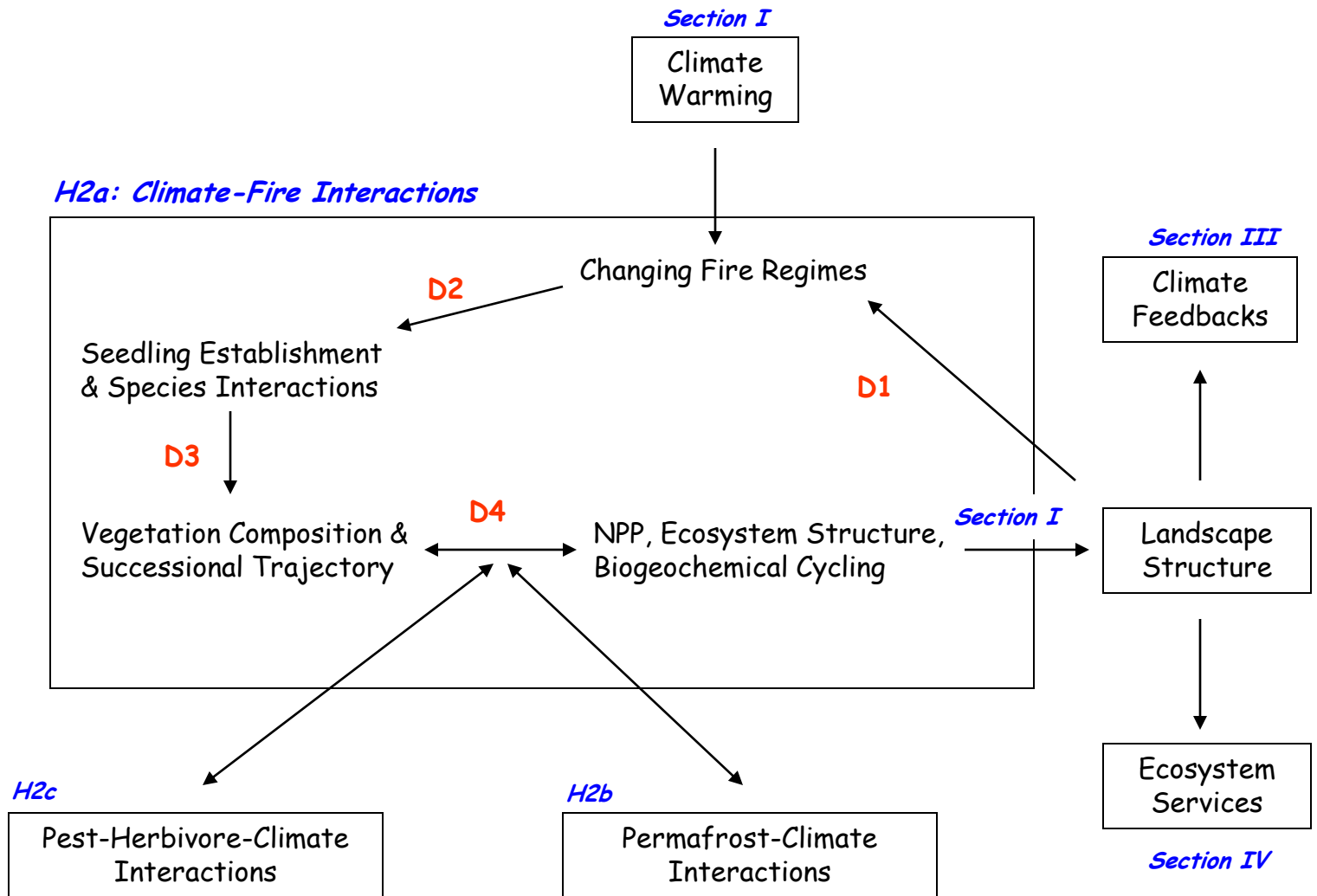
Landscape
Structure

Social-
Ecological
Dynamics

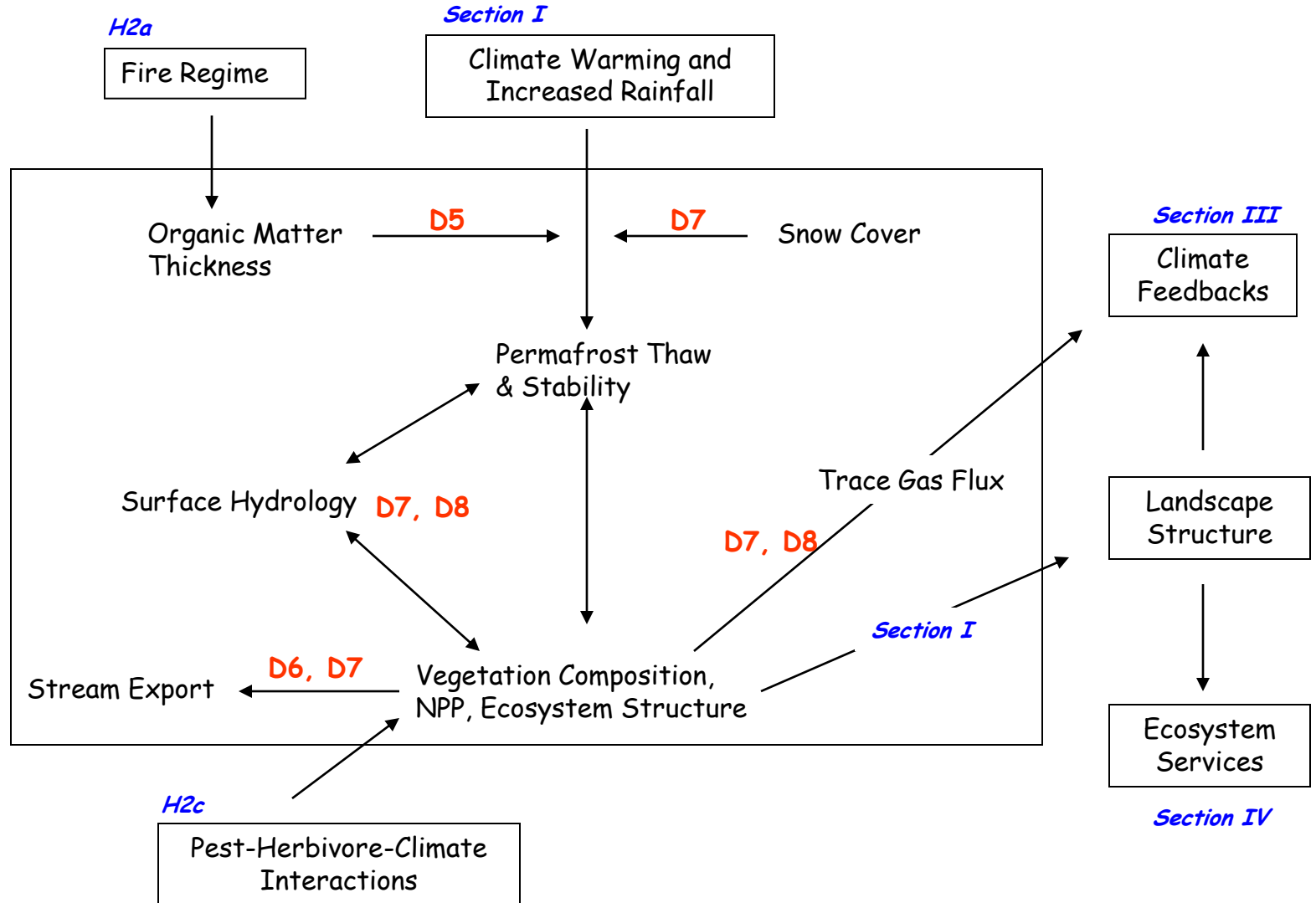
Section II

Climate-Disturbance Interactions

Section IV

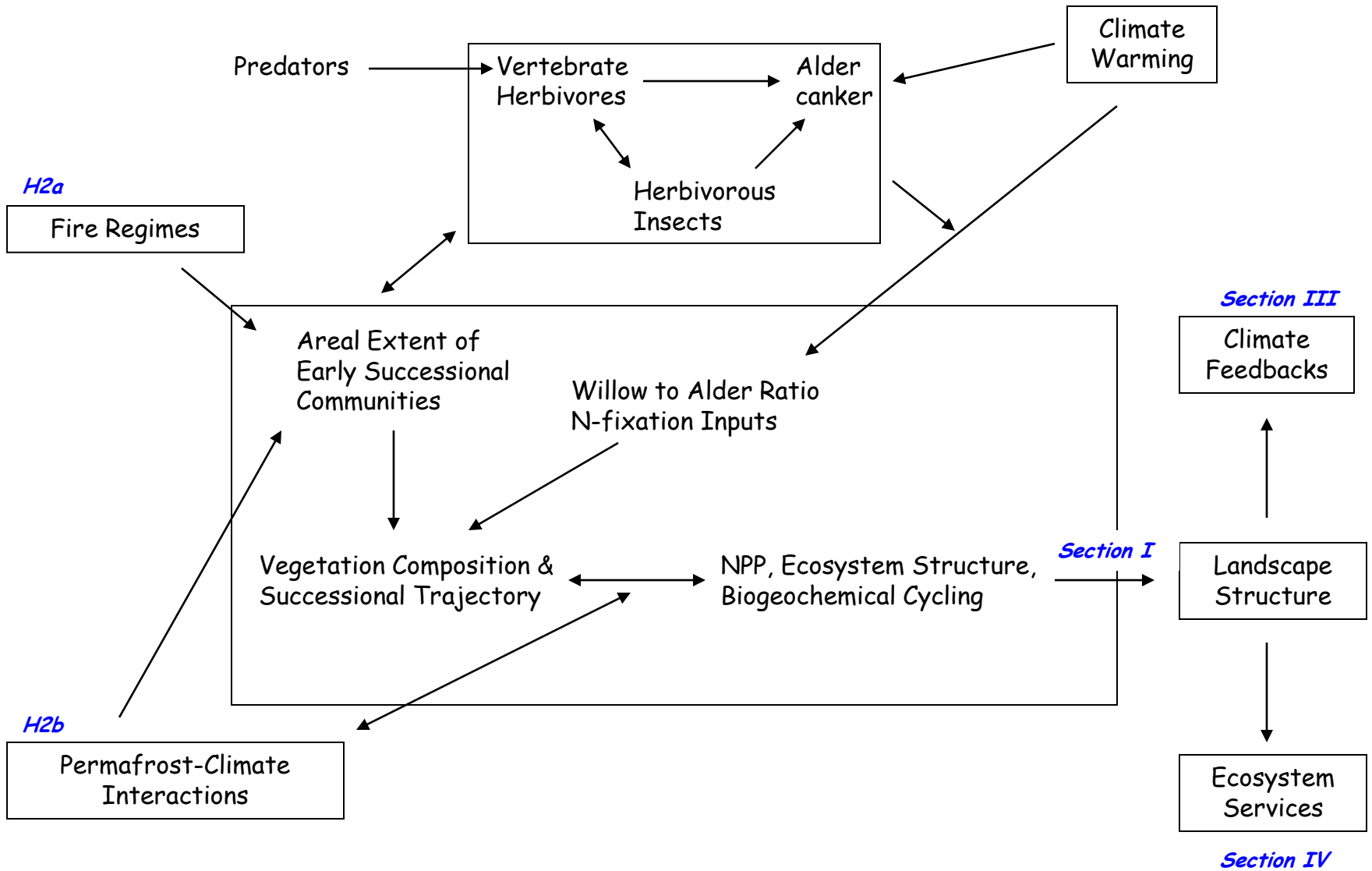


H2b: Climate-Permafrost Interactions



H2c: Climate-Pest-Herbivore Interactions D9-D11

Section I



Section III: Climate Feedbacks

How will interactive responses of disturbance regimes, ESF, & successional pathways to future climate variability & change influence regional ecosystem dynamics?

CF1: Couple ALFRESCO & TEM, & conduct a retrospective analysis (1860-2010) of the historical fire regime and associated vegetation response.

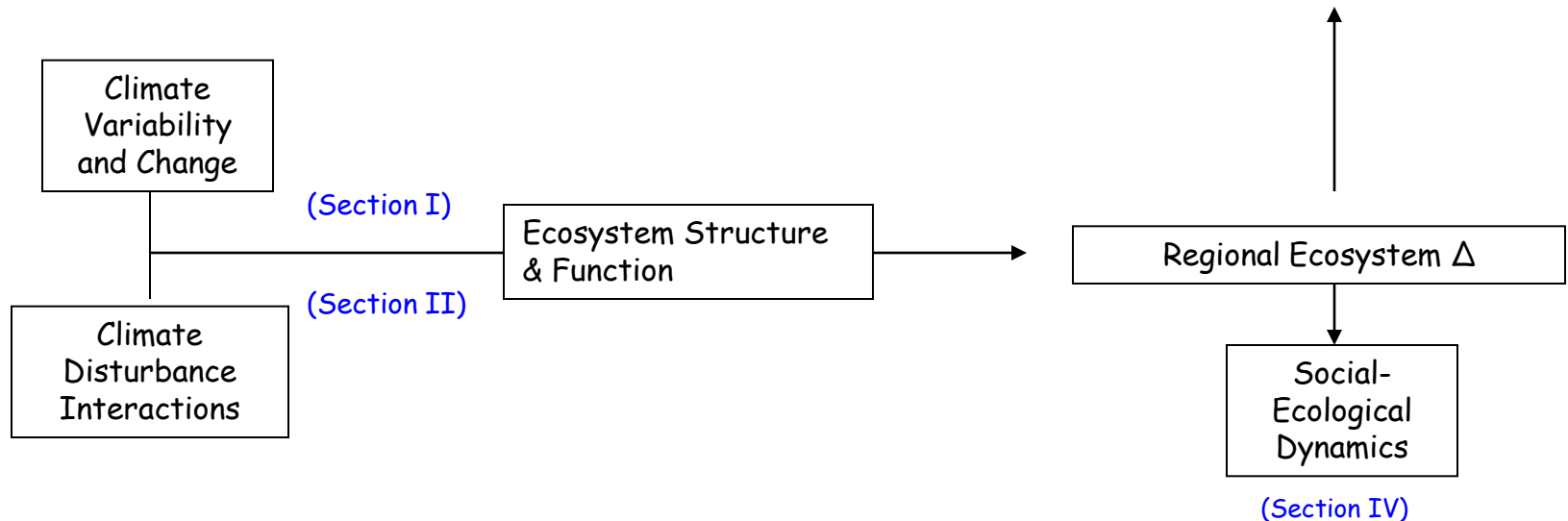
CF2: Apply coupled model for future climate scenarios (2011-2100).

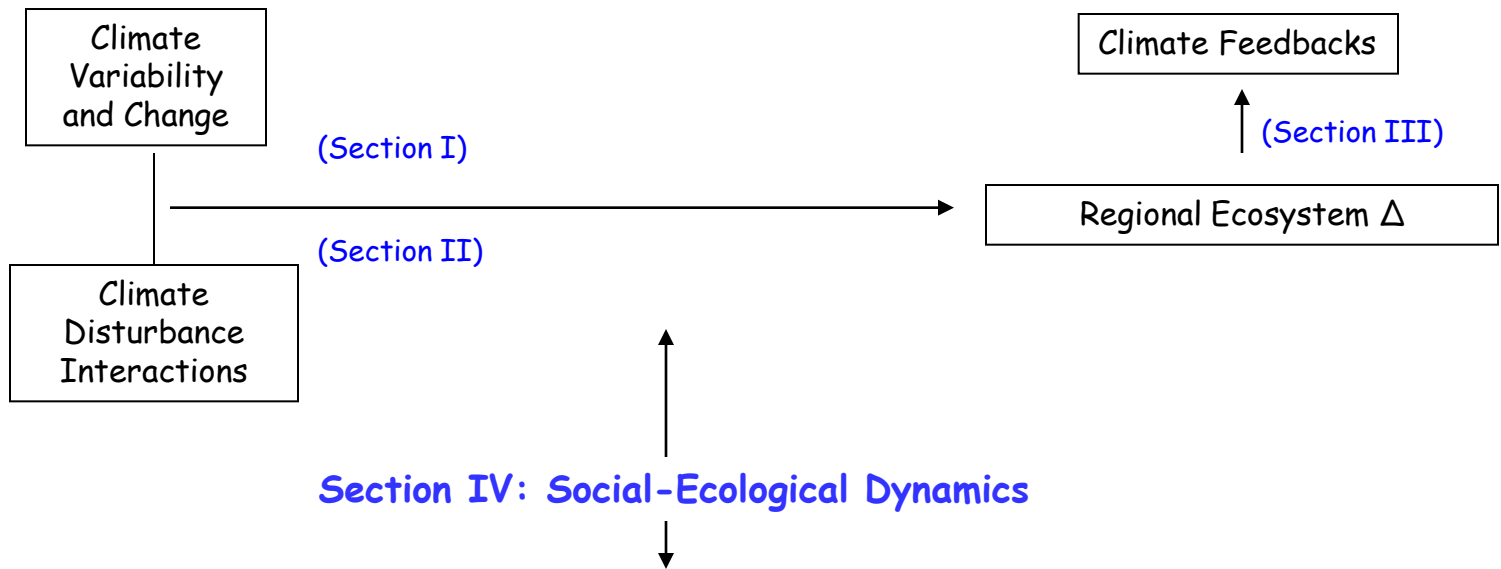
How will projections of regional ecosystem dynamics affect regional energy & water feedbacks to the climate system?

CF3: Model effects of future changes in post-fire vegetation & snow cover on atmospheric heating (2010-2100).

How will projections of regional ecosystem dynamics affect regional CO₂ & CH₄ feedbacks to the climate system?

CF4: Model effects of future changes in landscape drainage & plant functional types on trace gas fluxes (2010-2100).





Effects on provisioning and cultural services to Alaskans

SE1: What ecosystem services are most important for the sustainability of rural and urban communities?

SE2: What are the past trajectories, rates of change and likely future changes in these critical ecosystem services?

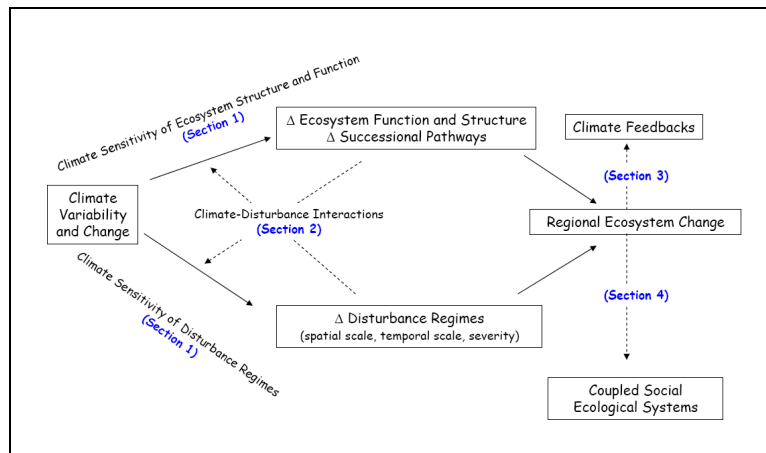
How do changes in ecosystem services affect community resilience?

SE3: Model subsistence dynamics of rural households to understand and predict changes in SE systems.

SE4: What are the formal and informal policies that enhance and limit community capacity to respond to change?

What are the opportunities for human adaptation and transformation?

SE5: Through partnerships with communities, identify conditions that facilitate innovation in future human adaptation and transformation



Education & Outreach

