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Changements climatiques et interactions interspécifiques au sein d'une communauté de vertébrés terrestres arctiques

Olivier Gilg, Jérôme Moreau, Loïc Bollache

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Changements climatiques et interactions interspécifiques au sein d'une communauté de vertébrés terrestres arctiques



Olivier GILG
Jérôme MOREAU
Loïc BOLLACHE



Changements climatiques et interactions interspécifiques au sein d'une communauté de vertébrés terrestres arctiques



**1. Nord-Est
Groenland :
géographie
logistique**

**2. Cycles du
lemming :
interactions
prédateurs-proie**

**3. Proies
alternatives et
interactions
indirectes**



Station Nord (2003>)

Zackenbergl (1995>)



Hochstetter Forland (2010>)

Trail Ø (1988>)















ROYAL ARCTIC LINE

MINA ARCTICA

UNIFLY

OY-HJN







2. Interactions prédateurs-proie au sein d'une communauté à dynamique cyclique

Chouette harfang



Labbe à longue queue



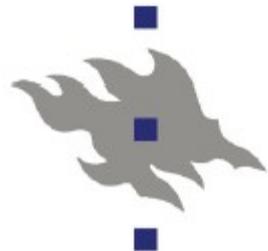
Renard polaire



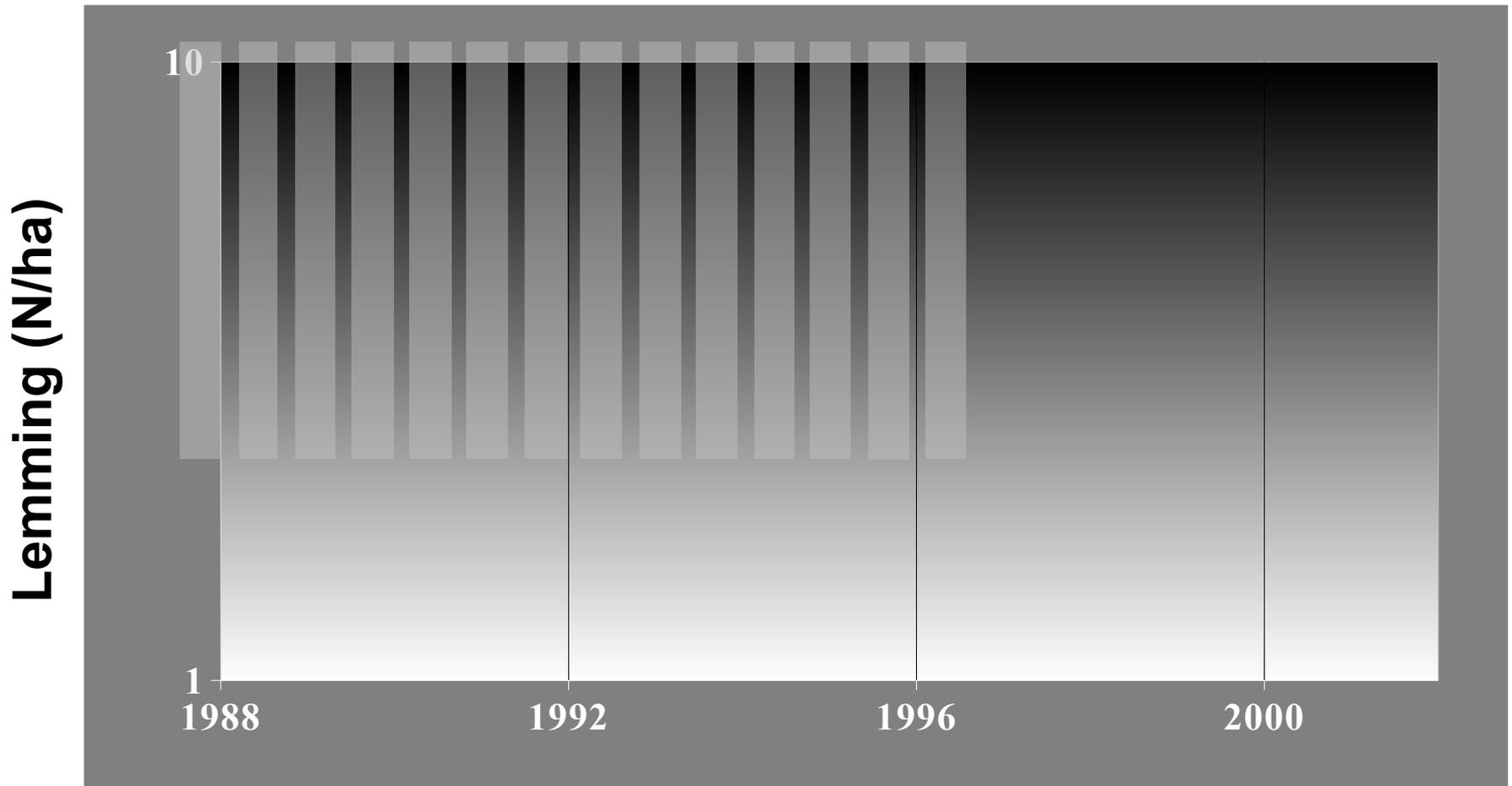
Hermine



lier

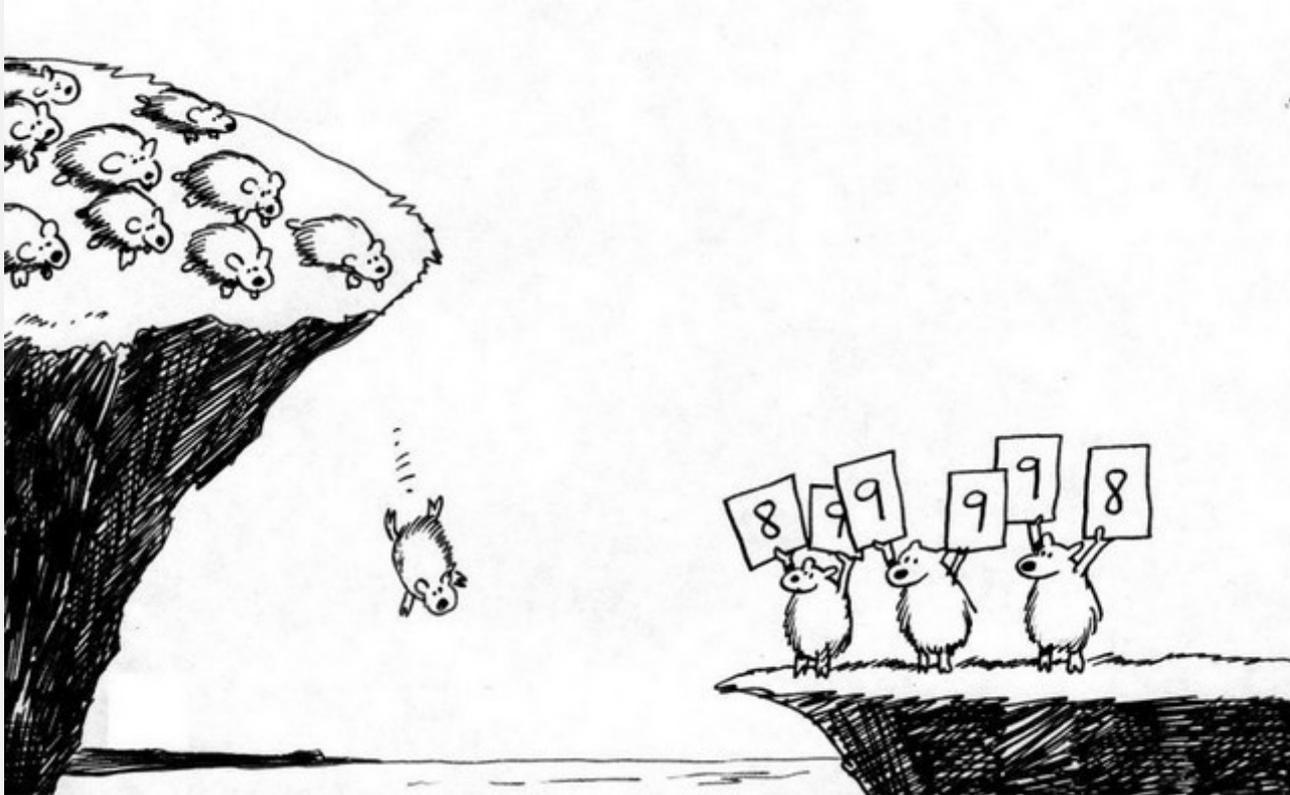


Cycles pluriannuels des lemmings

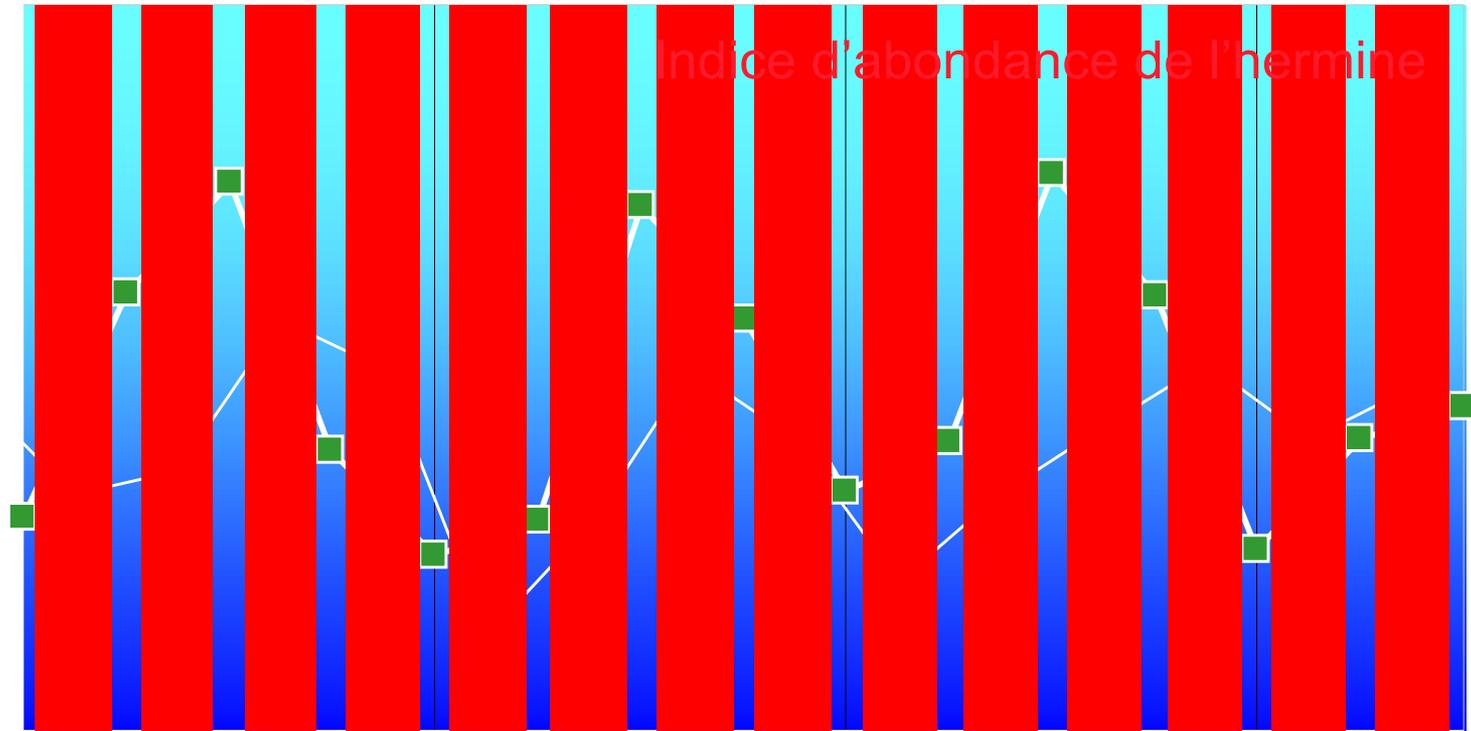


Ann. Zool. Fenn. 1995 (Sittler)
Oikos 2002 (Gilg)
Oikos 2006 (Gilg et al)

Recherches antérieures



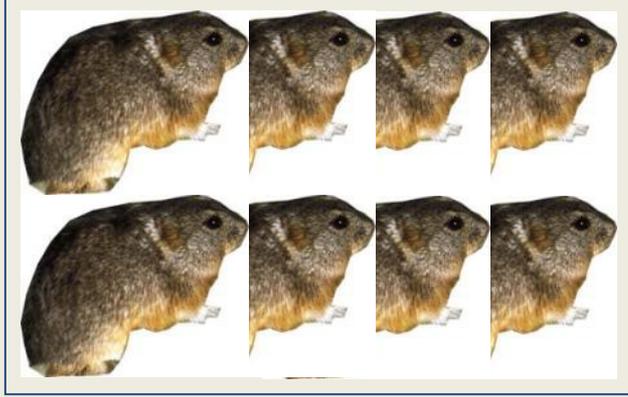
Densité dépendance différée (DDD) de l'hermine



Recherches antérieures

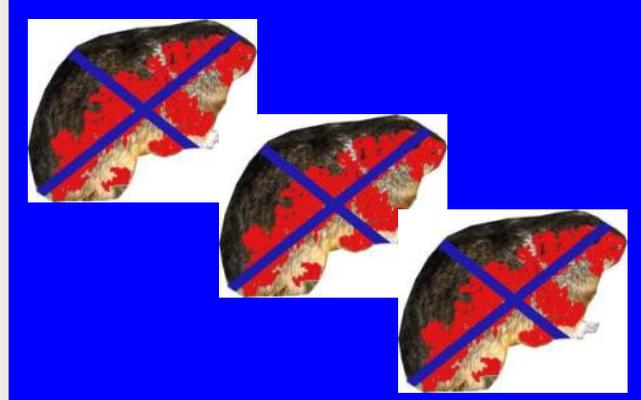
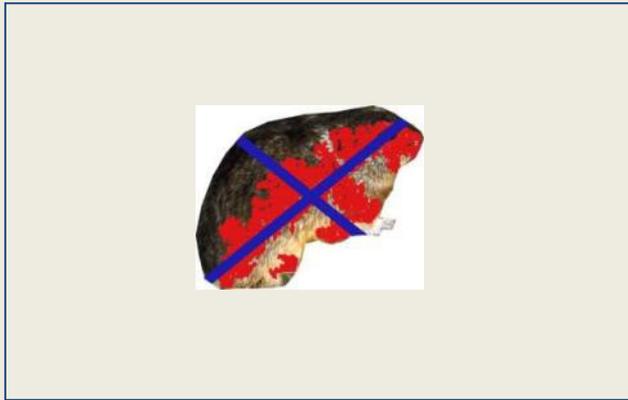
Réponses des prédateurs

Densité de lemmings



Rép. numériques

Rép. fonctionnelle

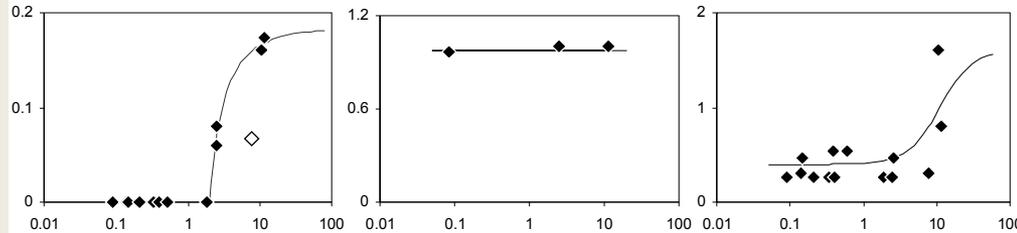


Réponse totale

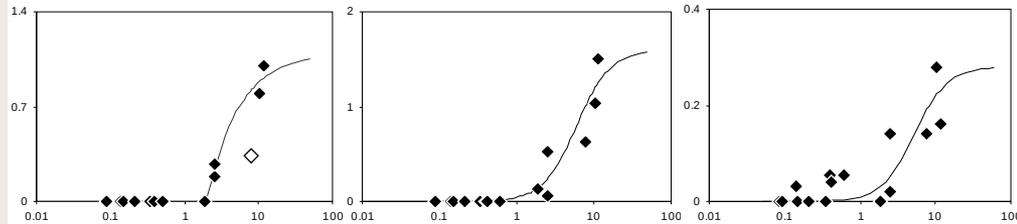


Chouette harfang Labbe à longue queue Renard polaire

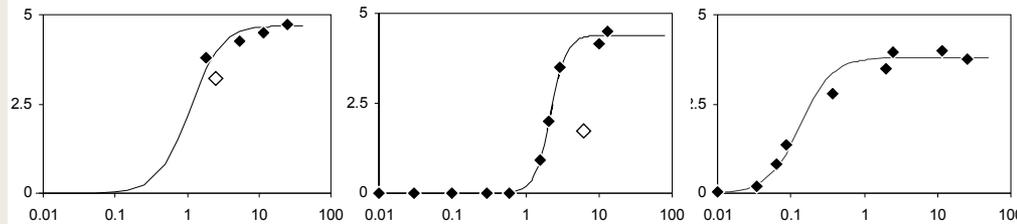
Réponses numériques (adultes)



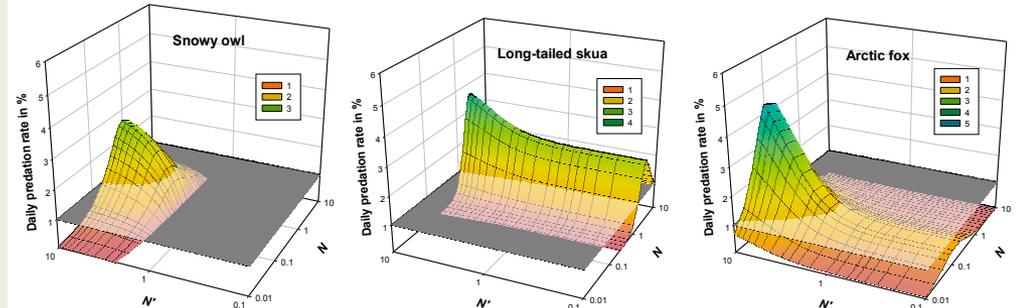
Réponses numériques (jeunes)



Réponses fonctionnelles

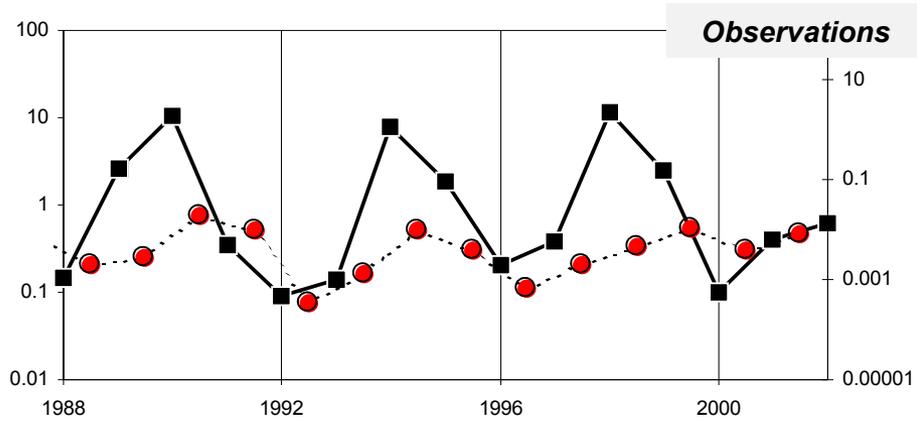


Réponses totales



Densités de lemmings

Validation de l'hypothèse prédation



Simulations

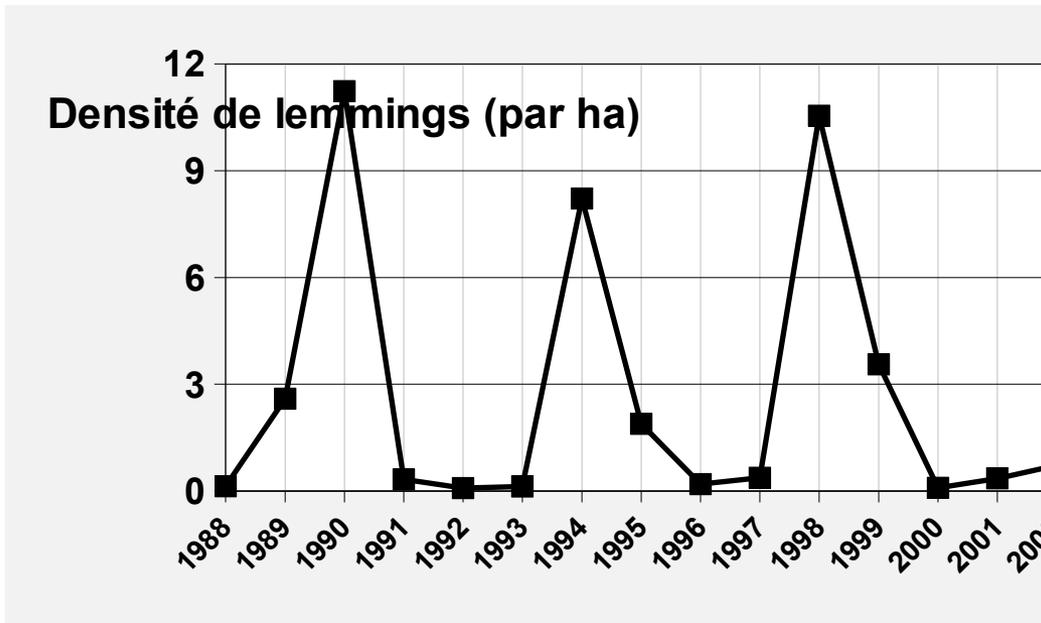
Lemming

N
(lemmings / **hermines**)

Hermine

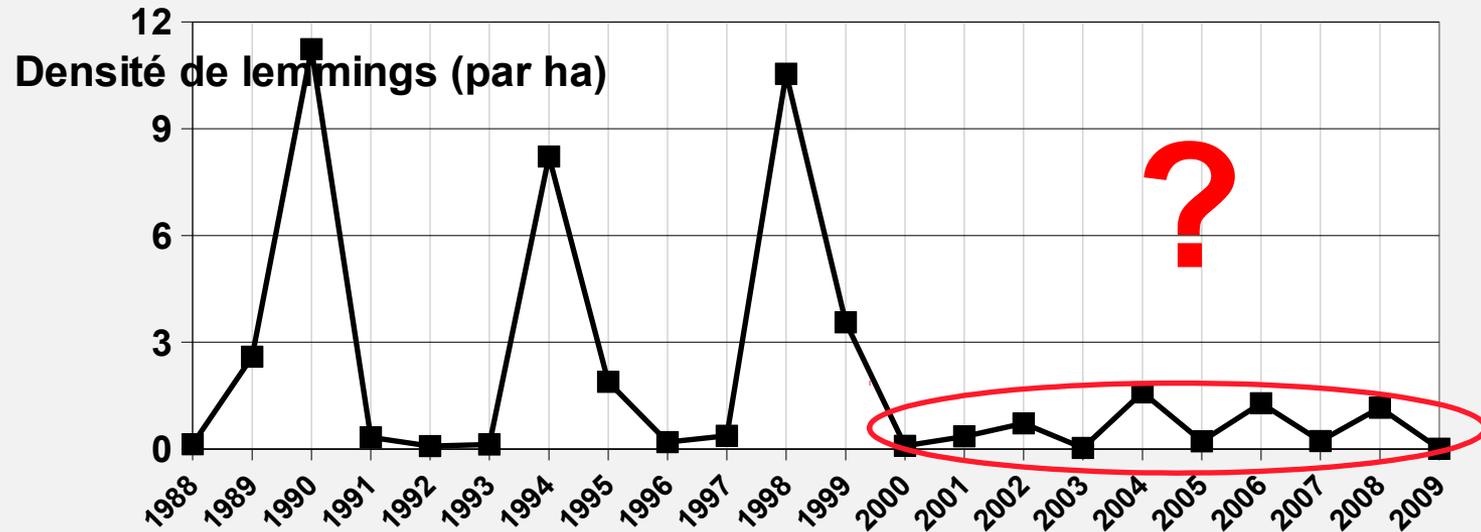
Recherches antérieures

Après 14 années de cyclicité...



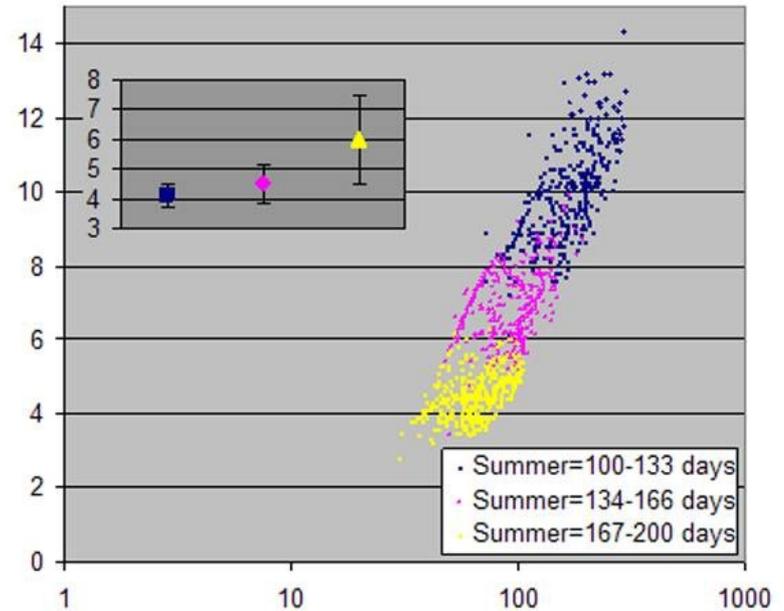
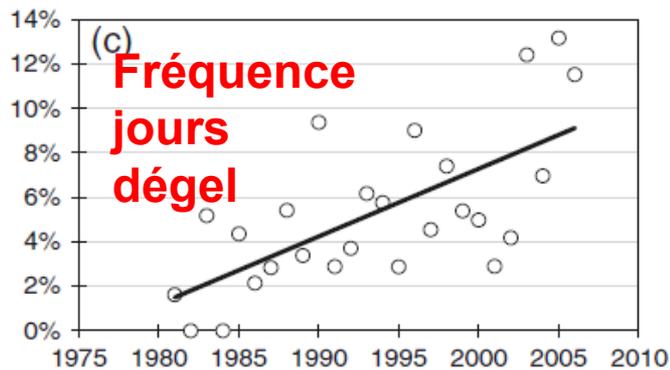
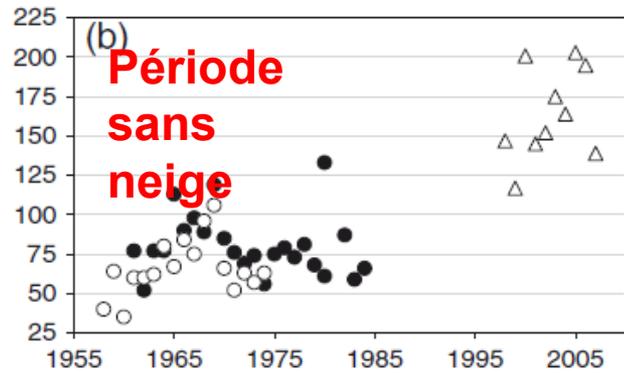
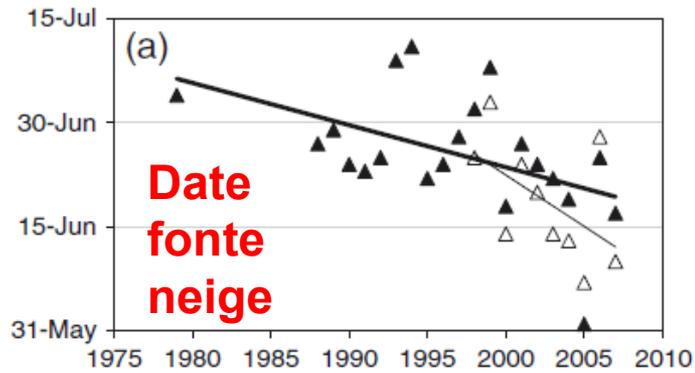
Recherches antérieures

... la dynamique est perturbée



Recherches antérieures

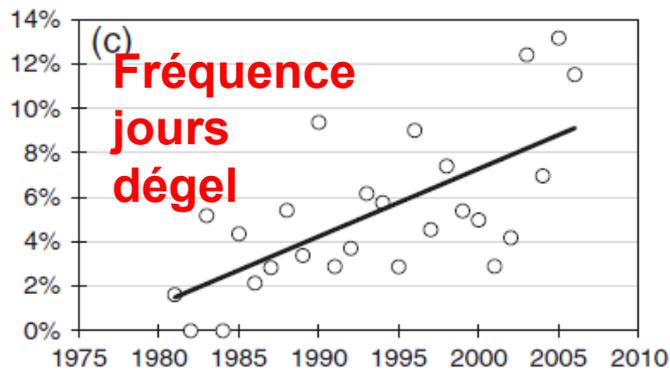
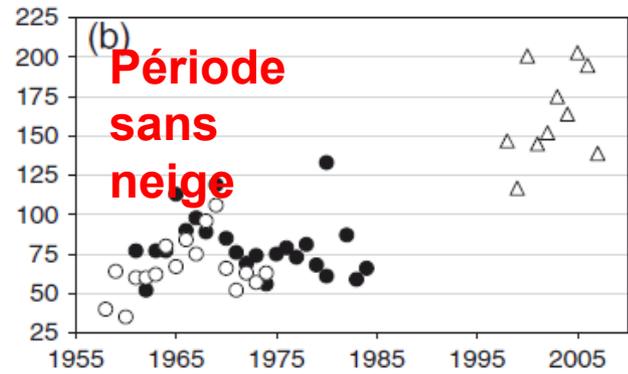
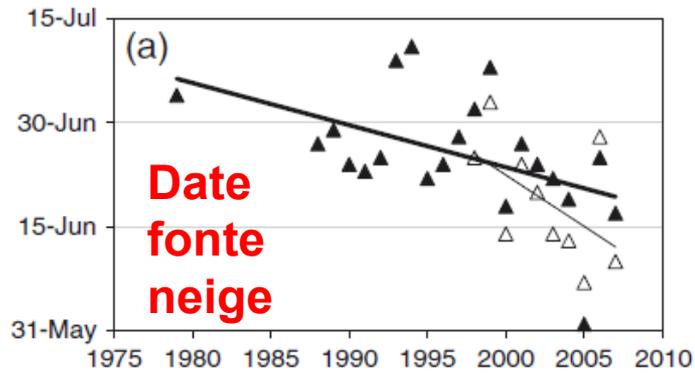
Impact des changements climatiques sur la dynamique de la communauté ?



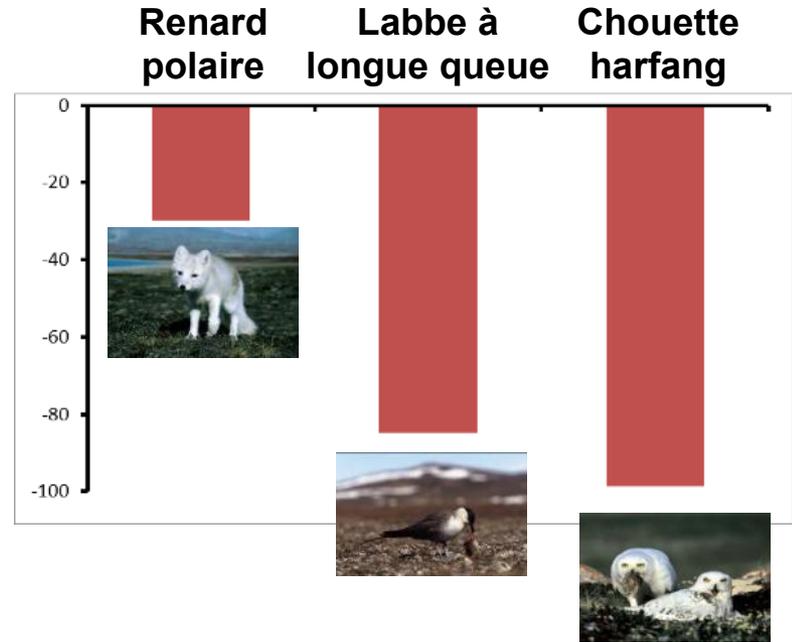
*Global Change Biol 2009 (Gilg, Siittler, Hanski)
Ann NY Acad Sc 2012 (Gilg et al)
Proc Roy Soc B 20012 (Schmidt et al)*

Recherches antérieures

Impact des changements climatiques sur la dynamique de la communauté ?



Baisse de productivité (>2000 vs. <2000)



Global Change Biol 2009 (Gilg, Siittler, Hanski)
Ann NY Acad Sc 2012 (Gilg et al)
Proc Roy Soc B 20012 (Schmidt et al)

3. Proies alternatives, interactions indirectes et changements climatiques

Chouette harfang



Labbe à longue queue



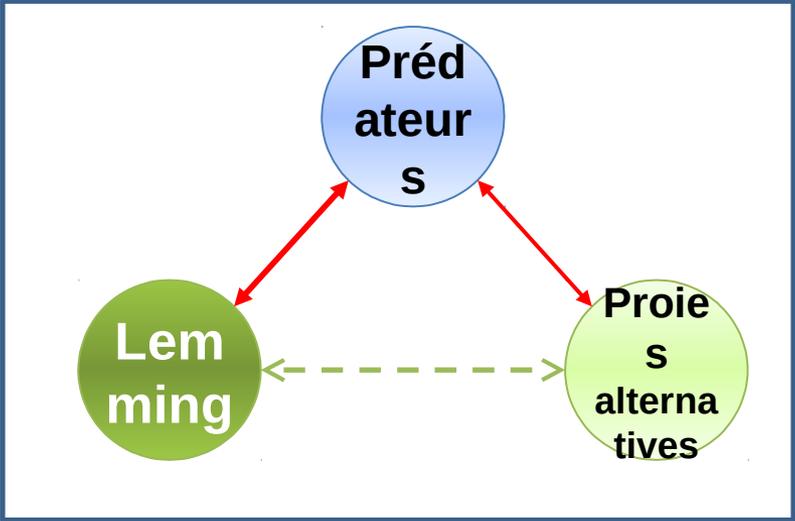
Renard polaire

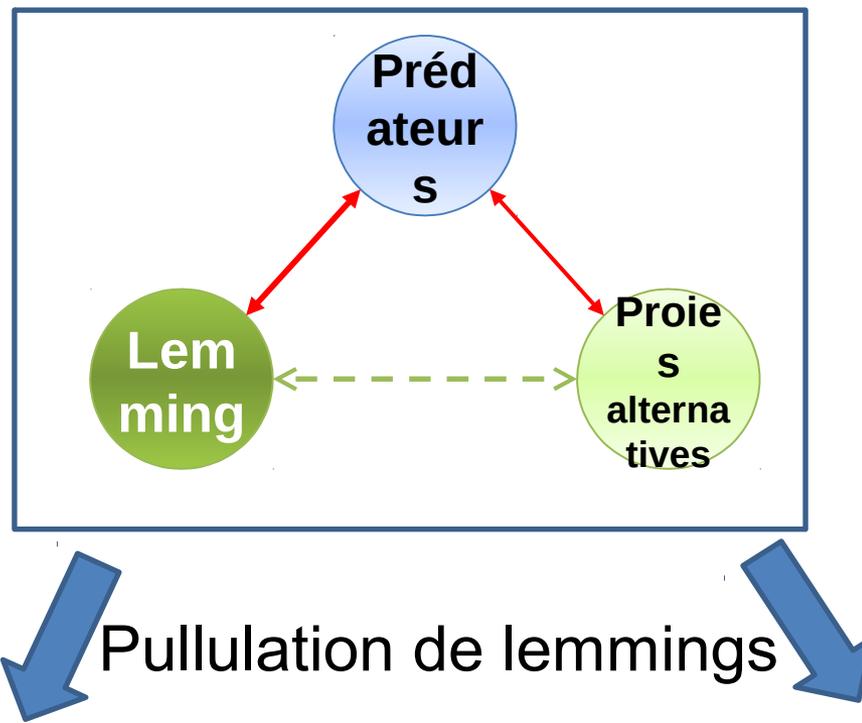


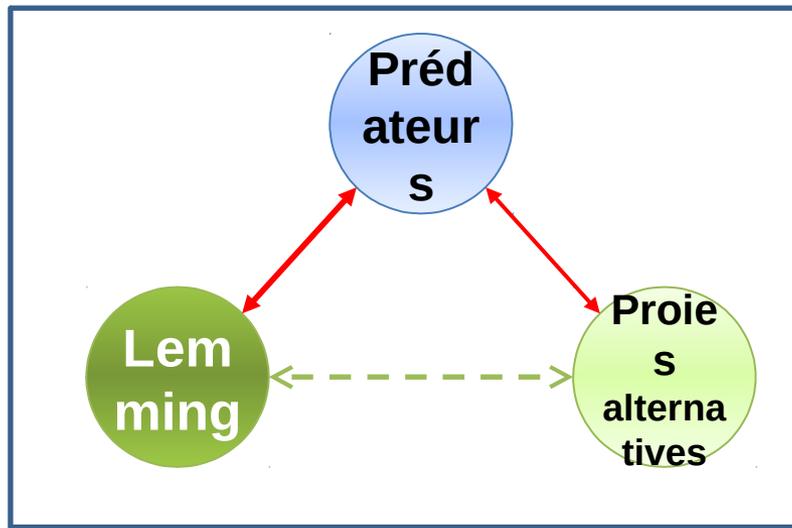
Hermine



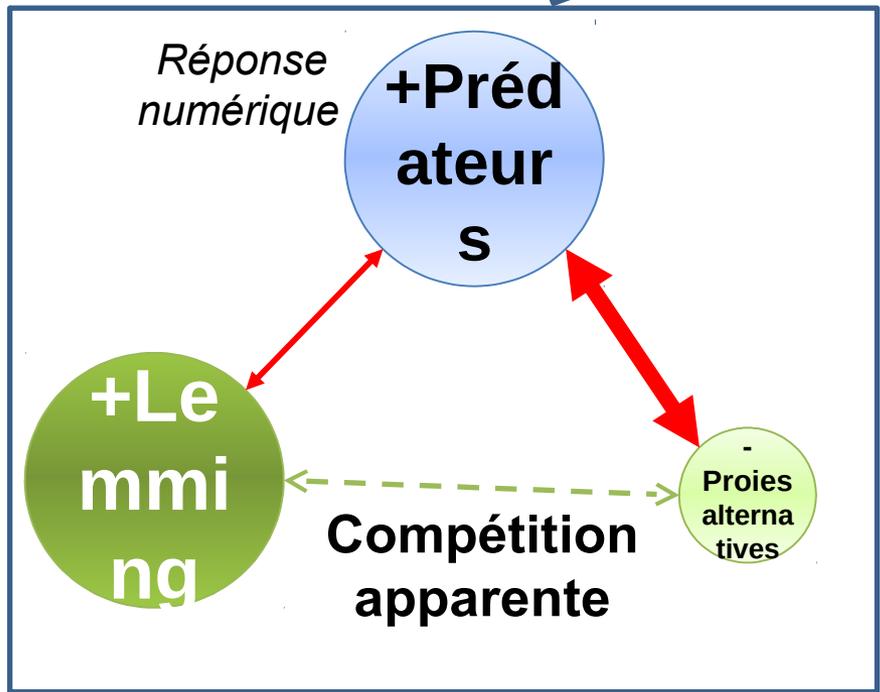
Lemming à collier

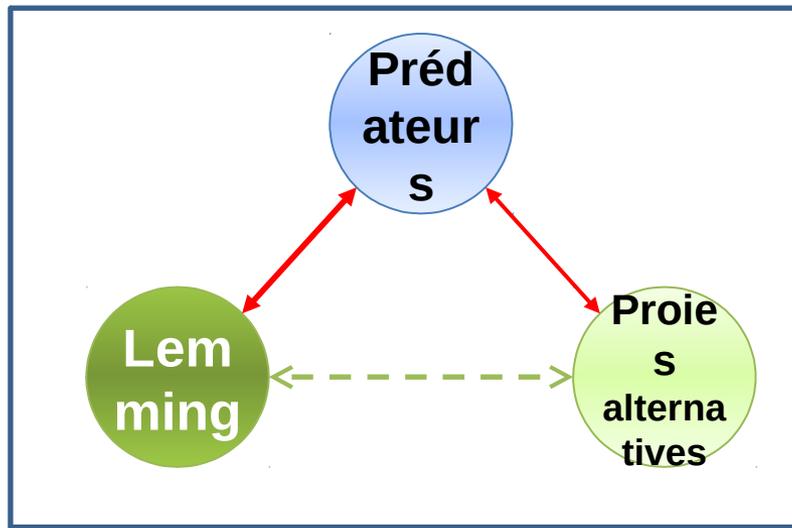




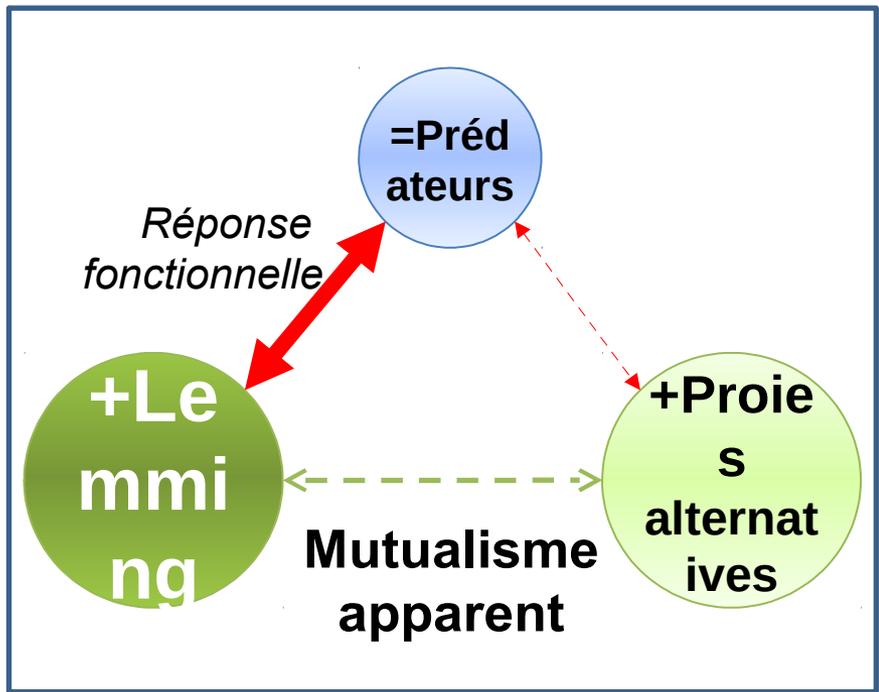
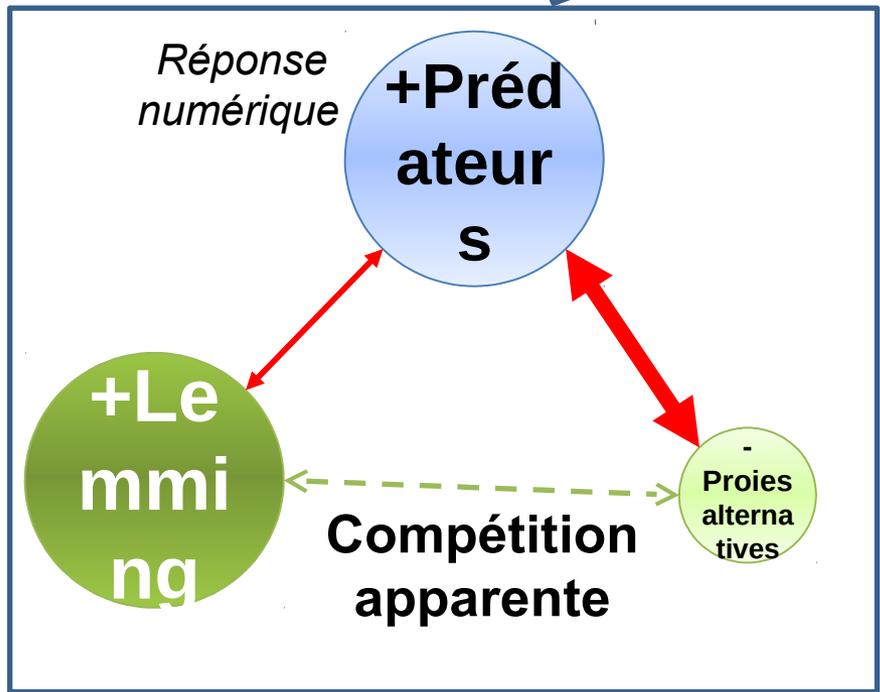


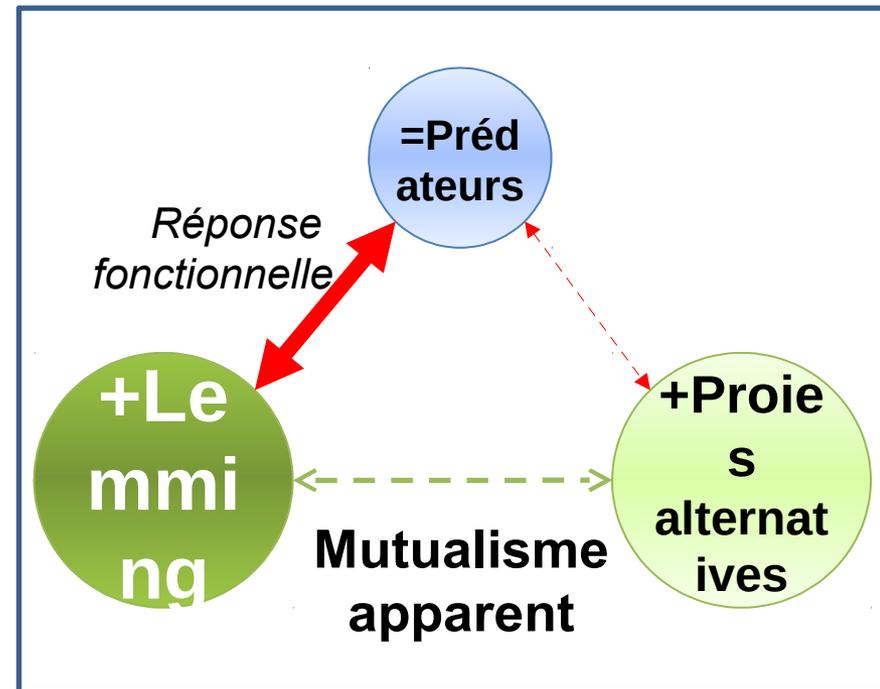
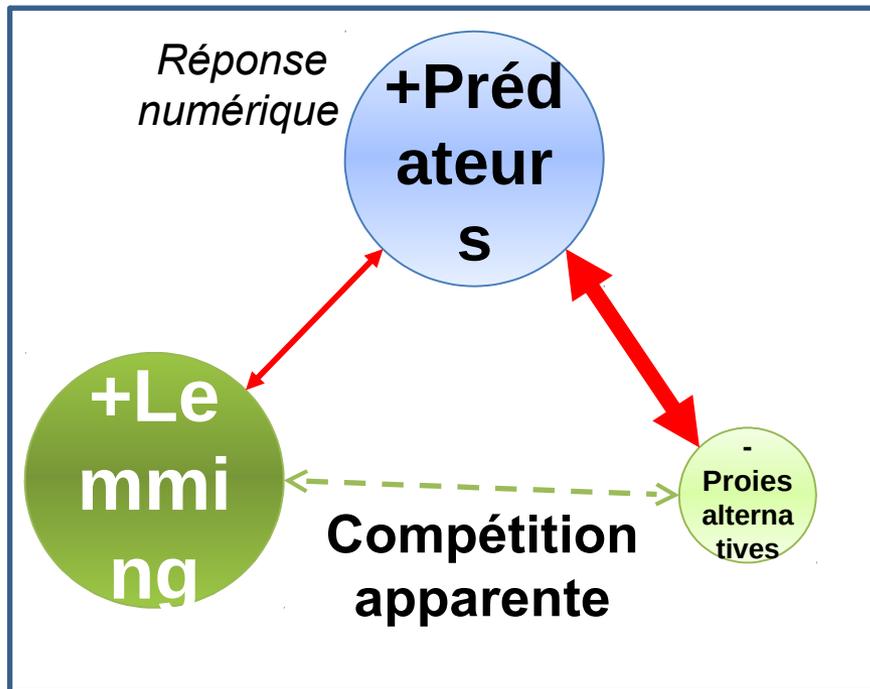
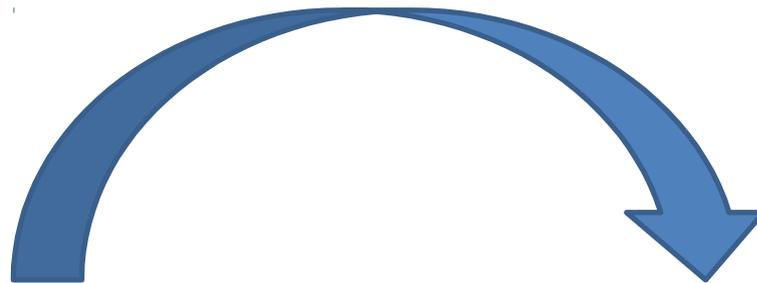
Pullulation de lemmings

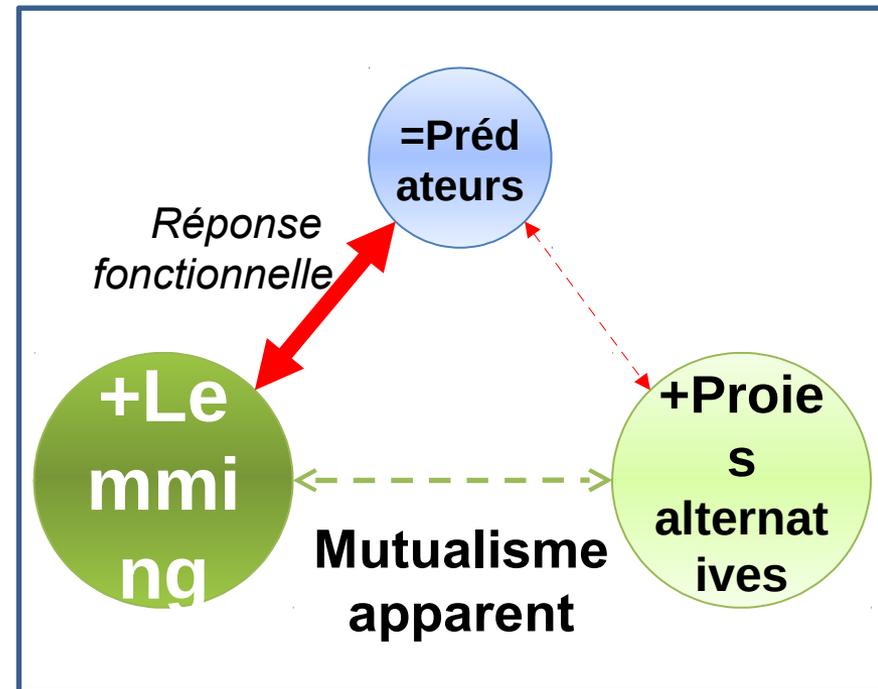
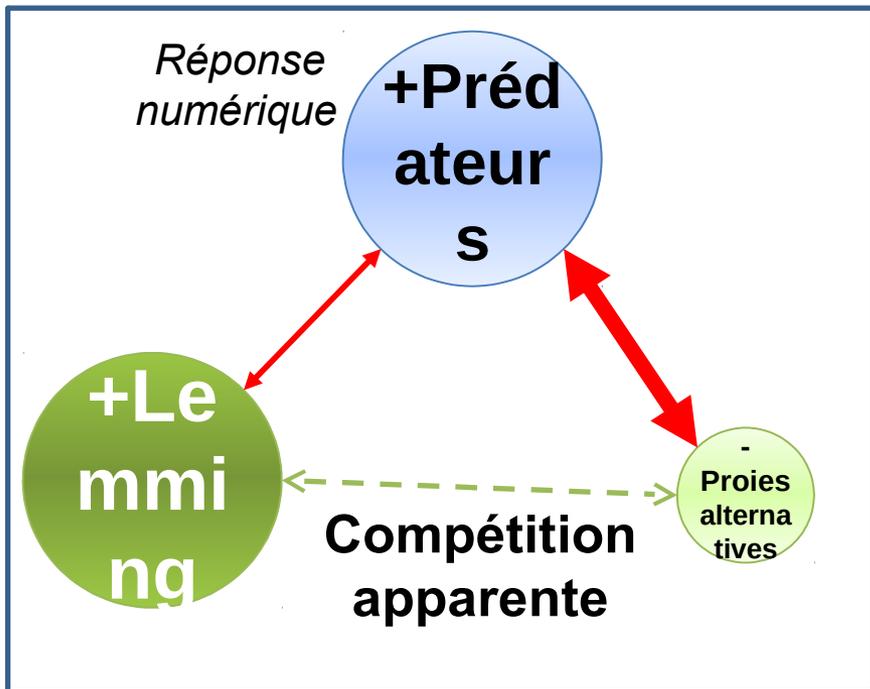
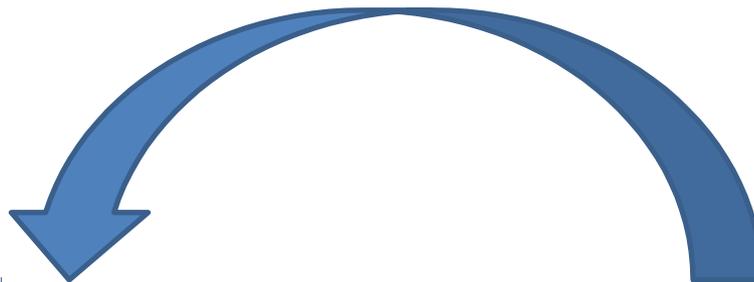


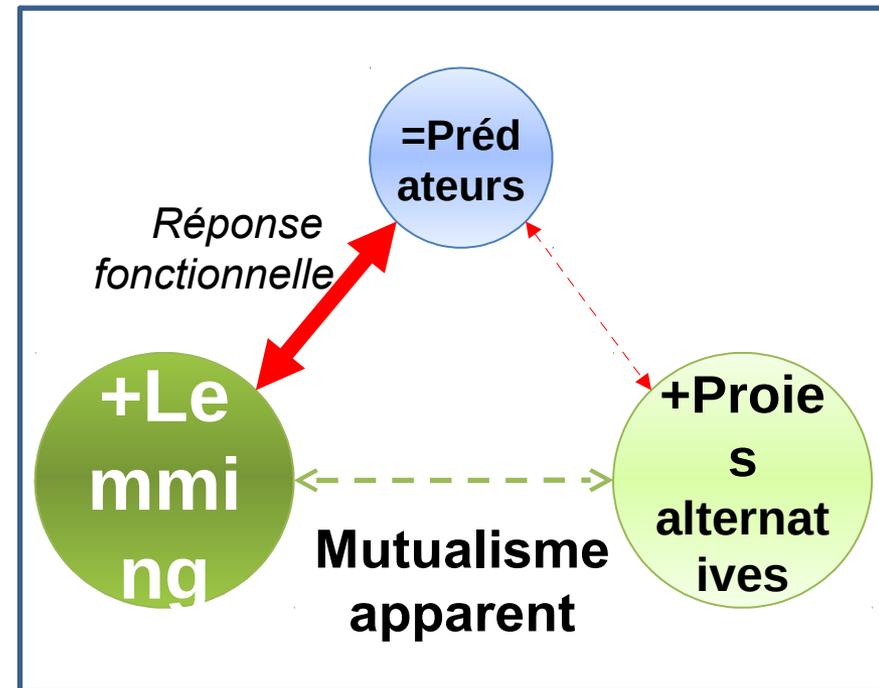
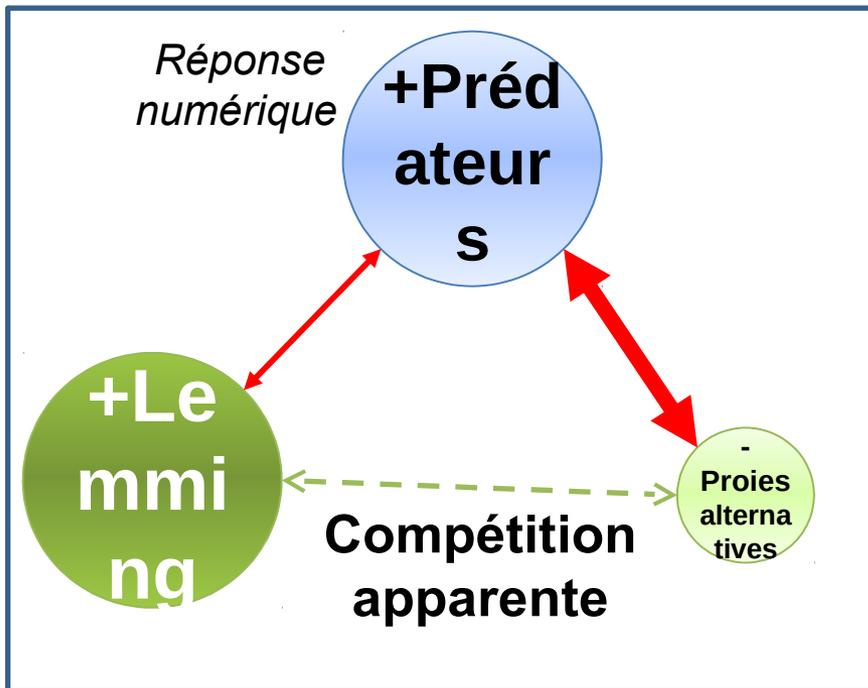
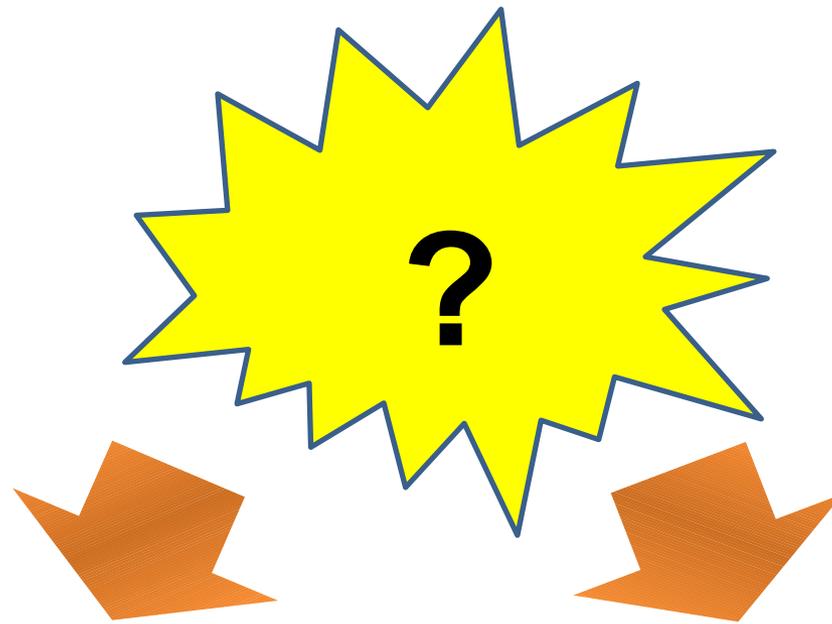


Pullulation de lemmings









Stratégies de soins parentaux



Stratégie biparentale
(↑ productivité)



incubation

Stratégies de soins parentaux



Stratégie biparentale
(↑ productivité)



incubation

Stratégie monoparentale
(↑ survie des adultes)



Stratégies de soins parentaux

Pression Prédation + 



Stratégie biparentale
(↑ productivité)

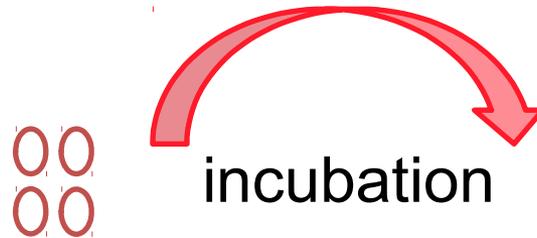
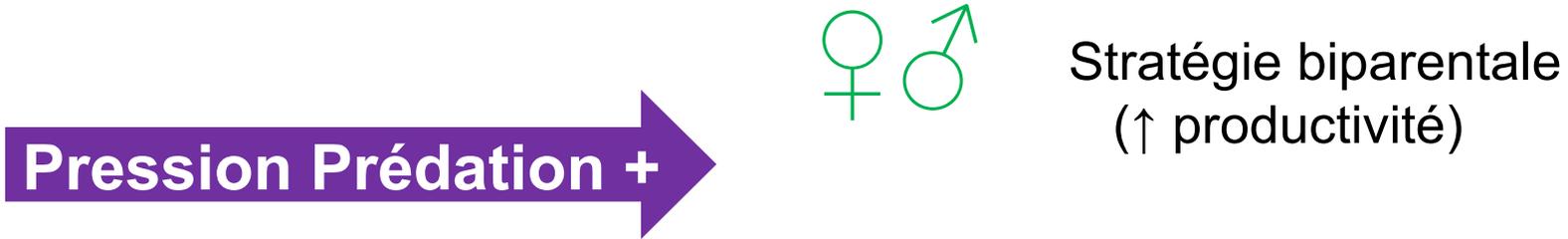


incubation

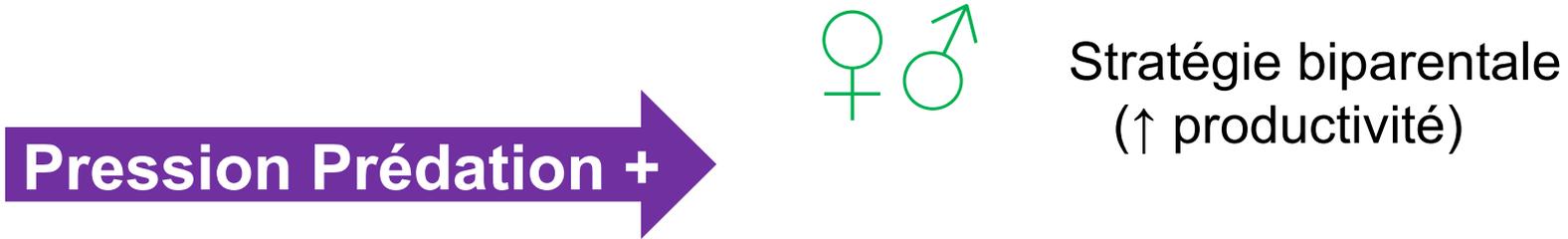
Stratégie monoparentale
(↑ survie des adultes)



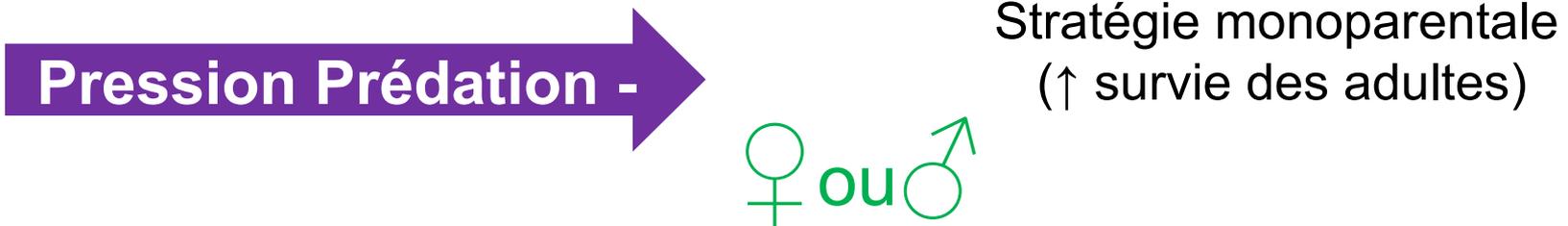
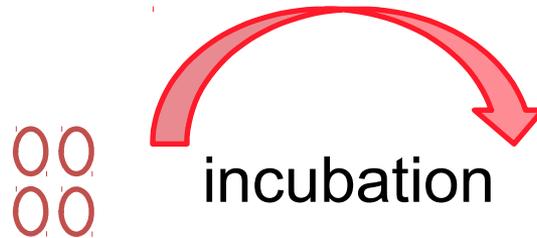
Stratégies de soins parentaux



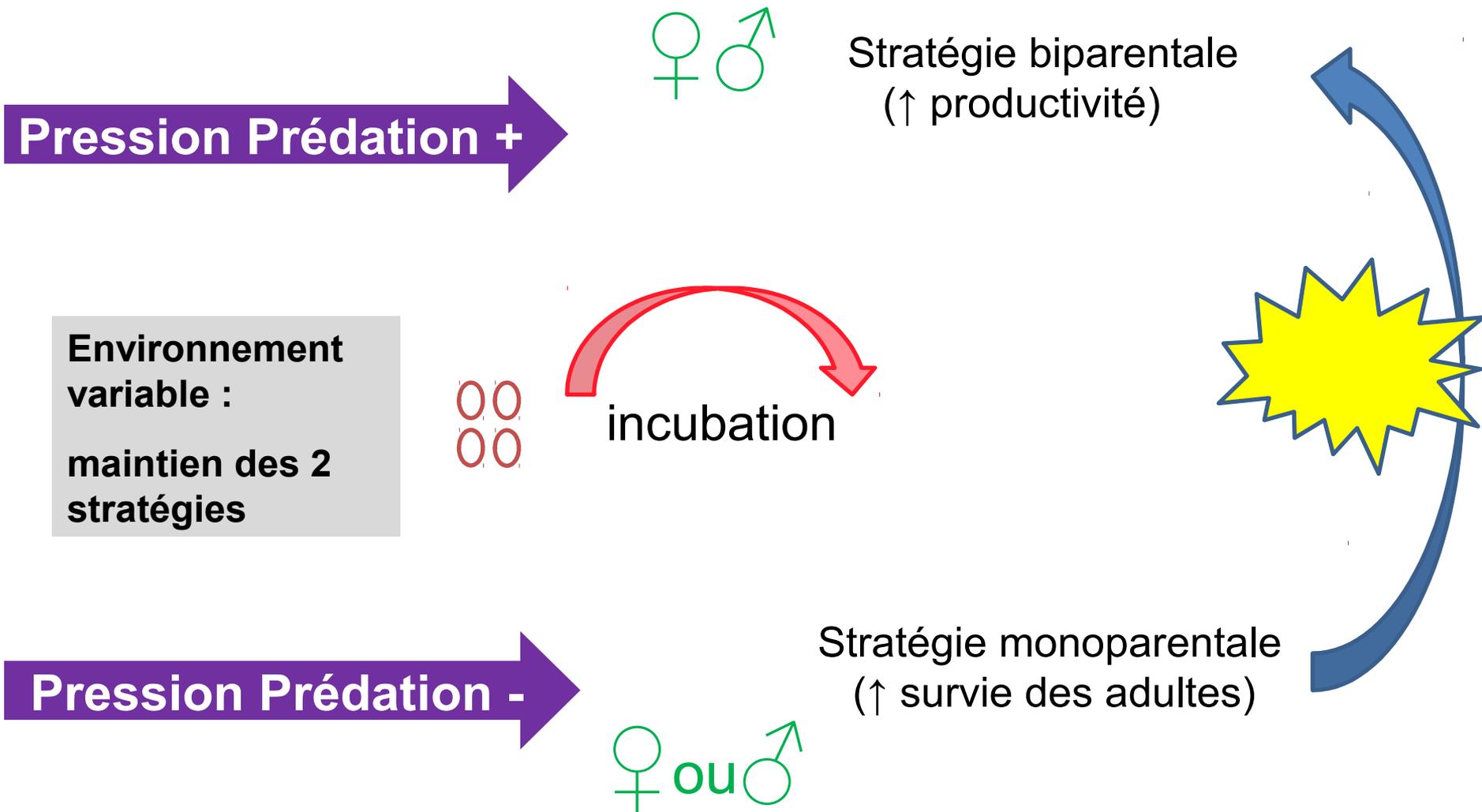
Stratégies de soins parentaux



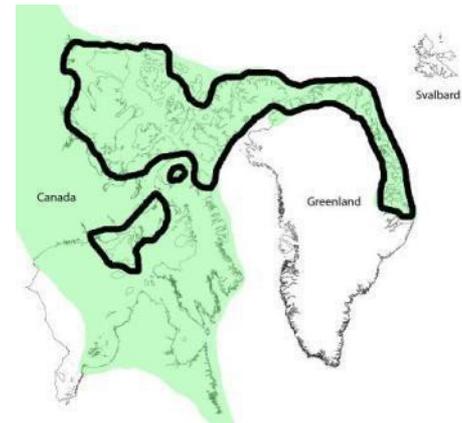
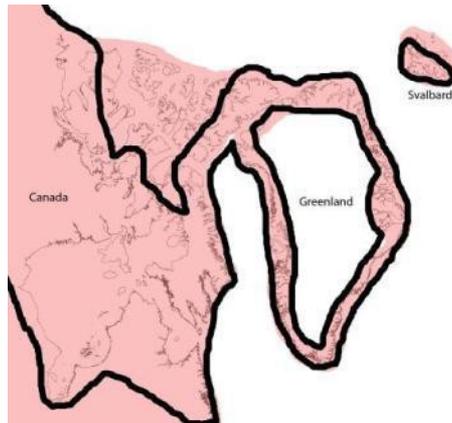
Environnement variable :
maintien des 2 stratégies



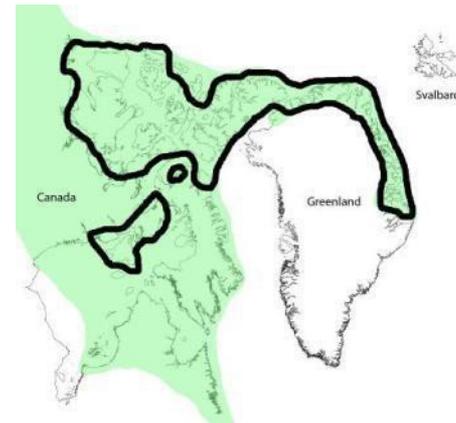
Stratégies de soins parentaux



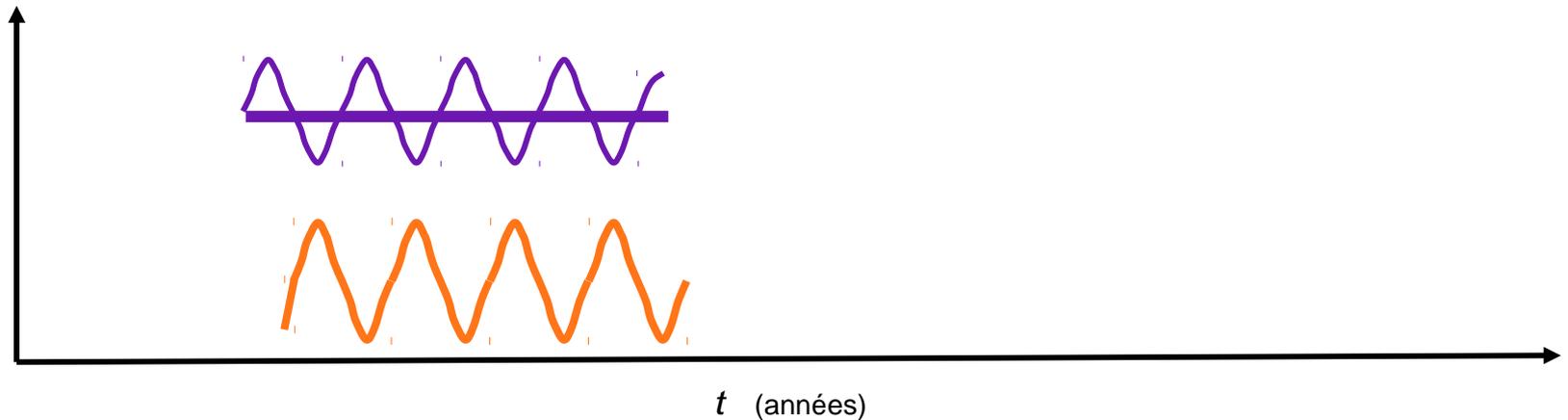
Biogéographie « prédation – dépendante »



Biogéographie « prédation – dépendante »



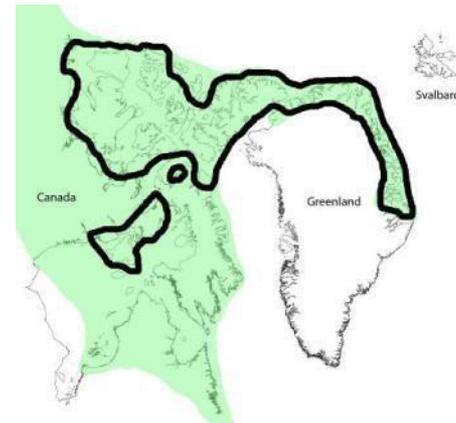
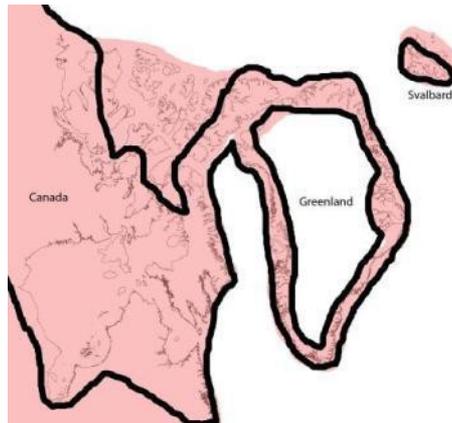
Relâchement périodique croissant de la pression de prédation



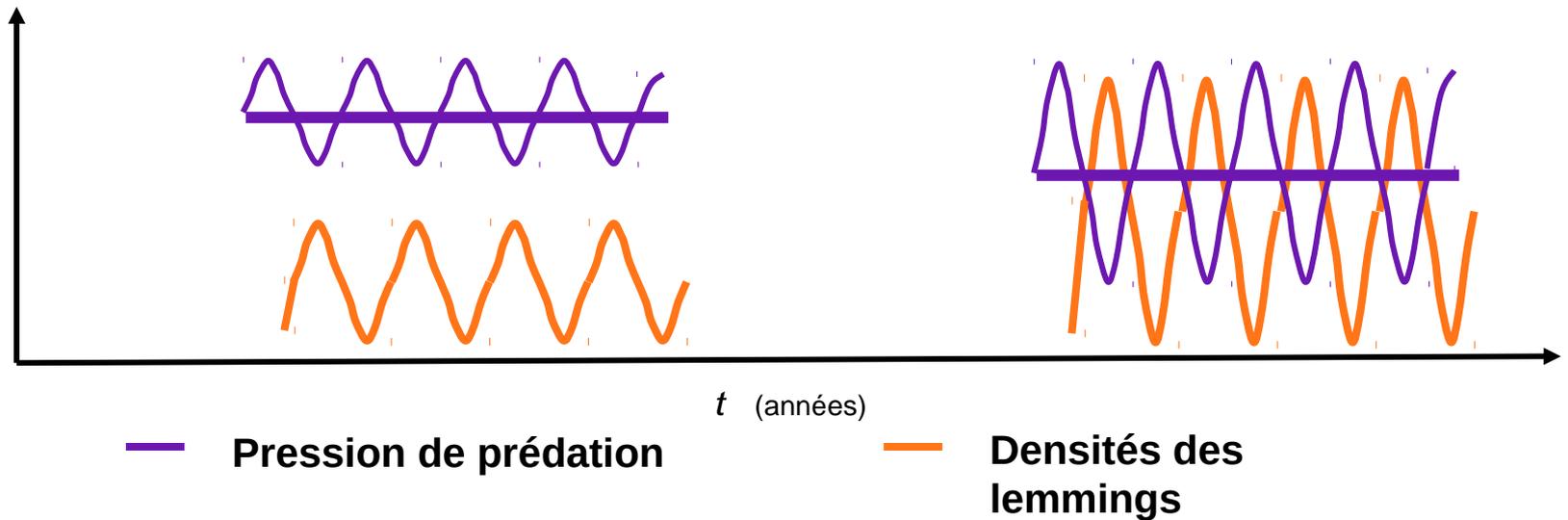
— Pression de prédation
moyenne des prédateurs
généralistes

— Densités des
lemmings

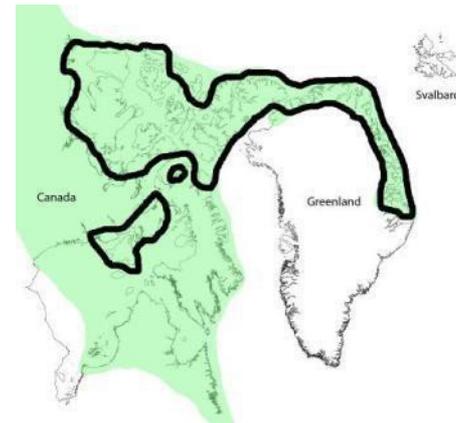
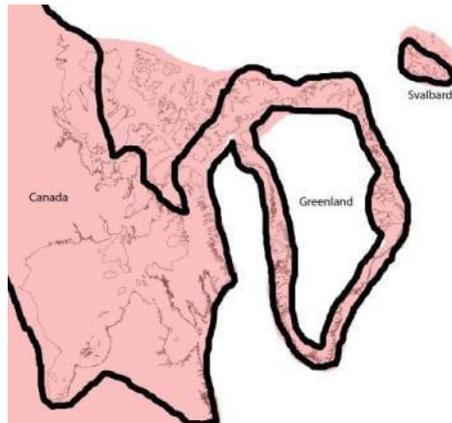
Biogéographie « prédation – dépendante »



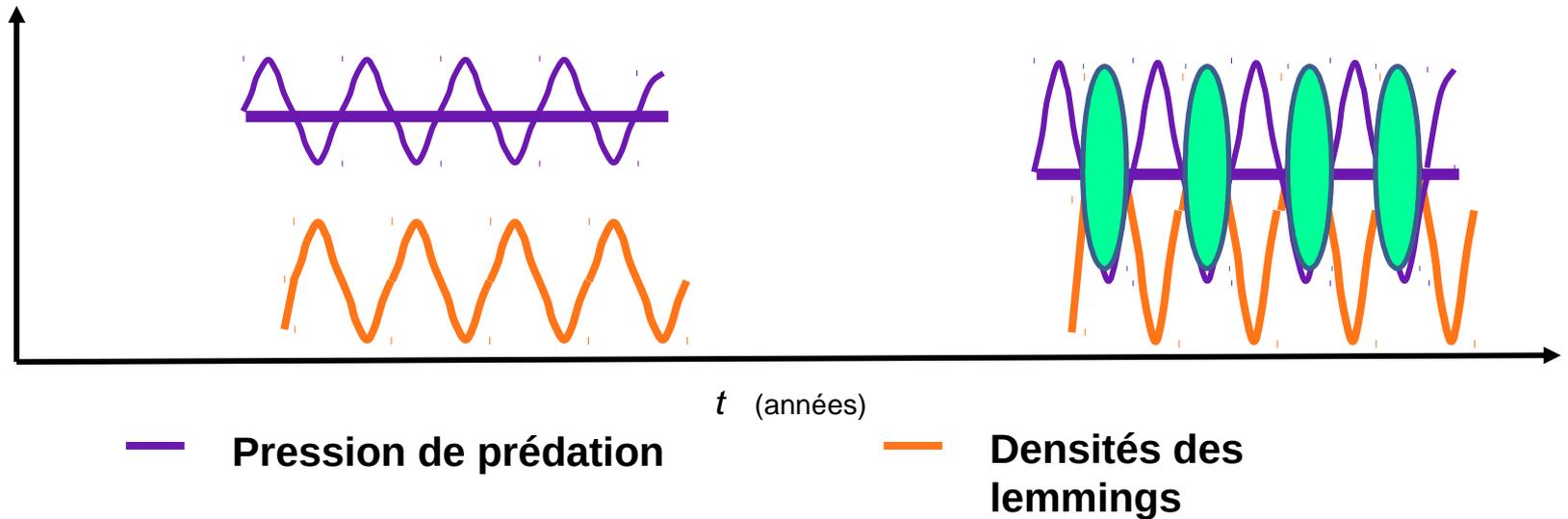
Relâchement périodique croissant de la pression de prédation



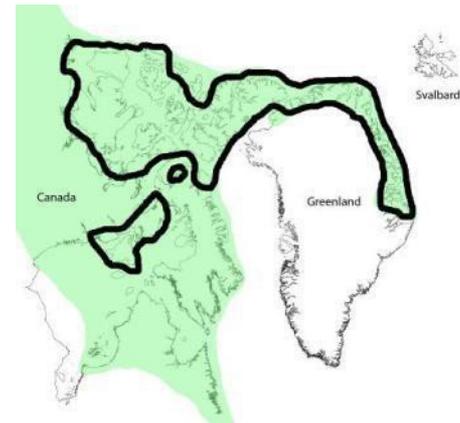
Biogéographie « prédation – dépendante »



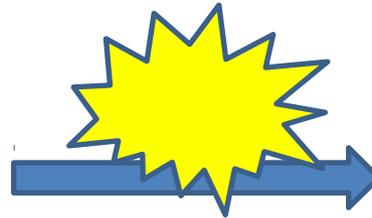
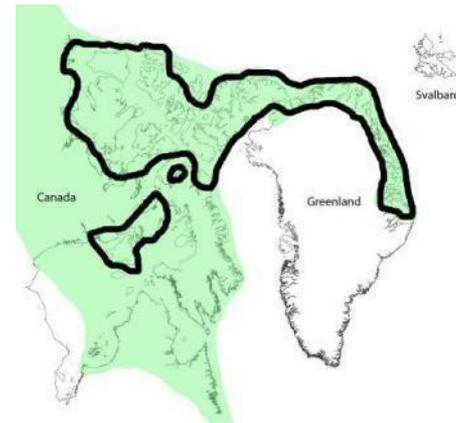
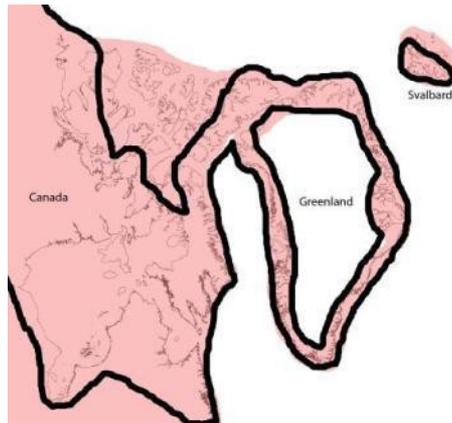
Relâchement périodique croissant de la pression de prédation



Biogéographie « prédation – dépendante »



Biogéographie « prédation – dépendante »



Merci !

