



# TAIGA RODENT COMMUNITY BEFORE AND AFTER ENVIRONMENTAL DISTURBANCES CAUSED BY WIND STORM TREE FALL AND WILD FIRE

Ivan Kshnyasev<sup>1</sup>, Yuriy Marin<sup>2</sup>

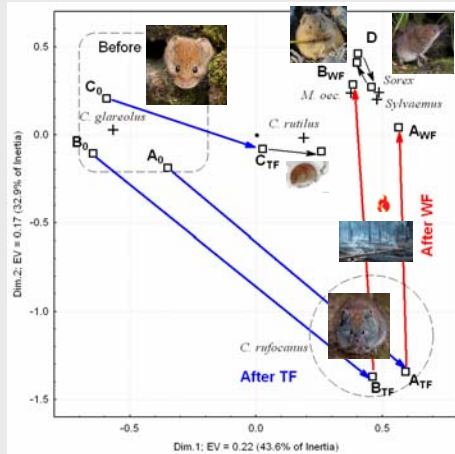
1 Institute of Plant and Animal Ecology, RAS, Yekaterinburg, Russia,  
2 Visimskiy Biosphere Reserve, Kirovgrad, Russia



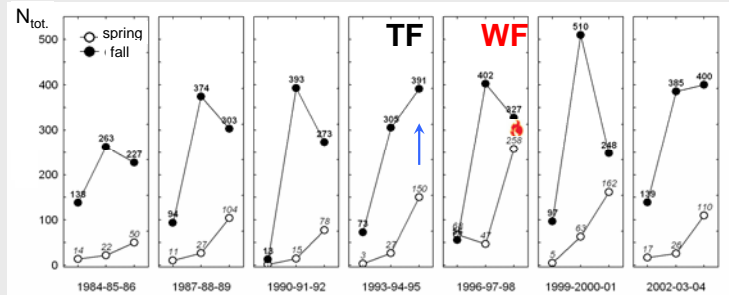
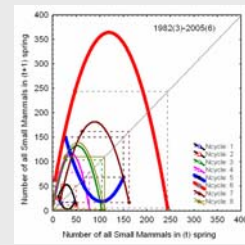
The burned (in 1998) area



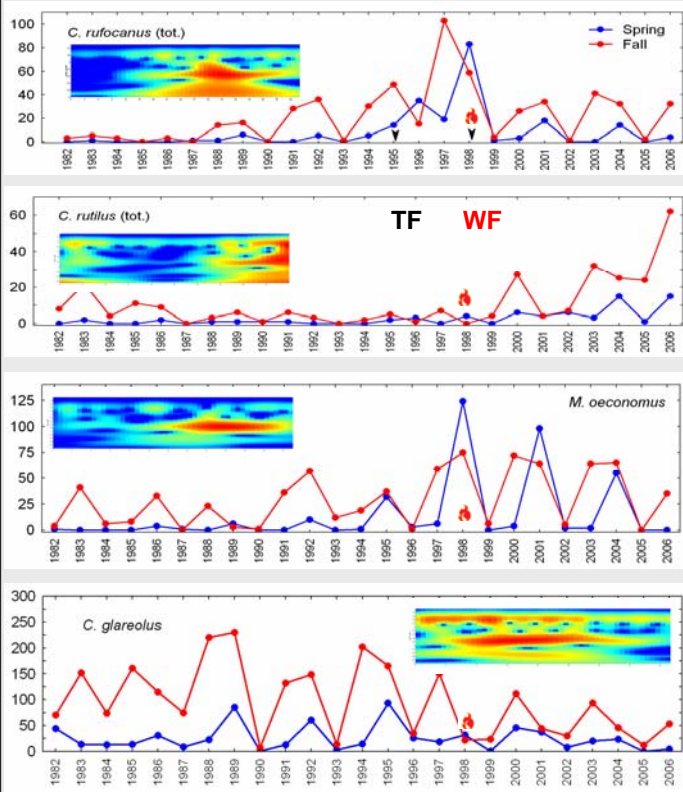
We investigated dynamics of southern taiga rodent community (RC) in the Visimskiy Biosphere Reserve (Middle Urals) during the quarter of century (since 1982).



The catastrophic trees falls (TF) caused snow-wind storm (06.06.1995) and next (1998) wild fire (WF) gave us the unique possibility to reveal RC reaction on these environmental disturbances. We monitored RC biannually during 13 years before and 12 years after TF at 4 sampling plots: A, B – fir-spruce primeval forest, (+TF, +WF), C – mixed secondary forest (+TF), D – afforestation meadow (-TF,-WF), maximum distance is about 20 km. Total 50,000 trap-nights were done and 5338 rodents were caught.



We observed weak bounce in regular three-year oscillation and moderate increase in total density (odds ratio, OR=1.35, 95%CI 1.27-1.43) after TF, but a significant RC rearrangement.



- The *C. rufocanus* demonstrated fast outbreak in 4.2 (3.5-5.0) on TF and fast relaxation to cycles.
- The *C. rutilus* rose after WF by 3.6 (2.8-4.6) without relaxation.
- *M. oeconomus* displayed similar response pattern, OR=3.5 (3.1-4.1), but with much slower relaxation.
- The *Sylvaemus uralensis* (not shown) has most erratically dynamics and rose by 4.0 (2.7-6.0) after WF.
- The *C. glareolus* is only species which drops its mean density in 1.5 (1.4-1.6).
- Thus, on background of such drastic habitat transformations and shift in species composition, no crucial changes in cyclicity pattern were observed.
- We argue that, the main culprits behind rodent cycles are not the inter-specific competition within RC or plant-herbivores interactions, but other - most likely - the predator-prey interactions and whole RC shared the pressure of specialized predators.

