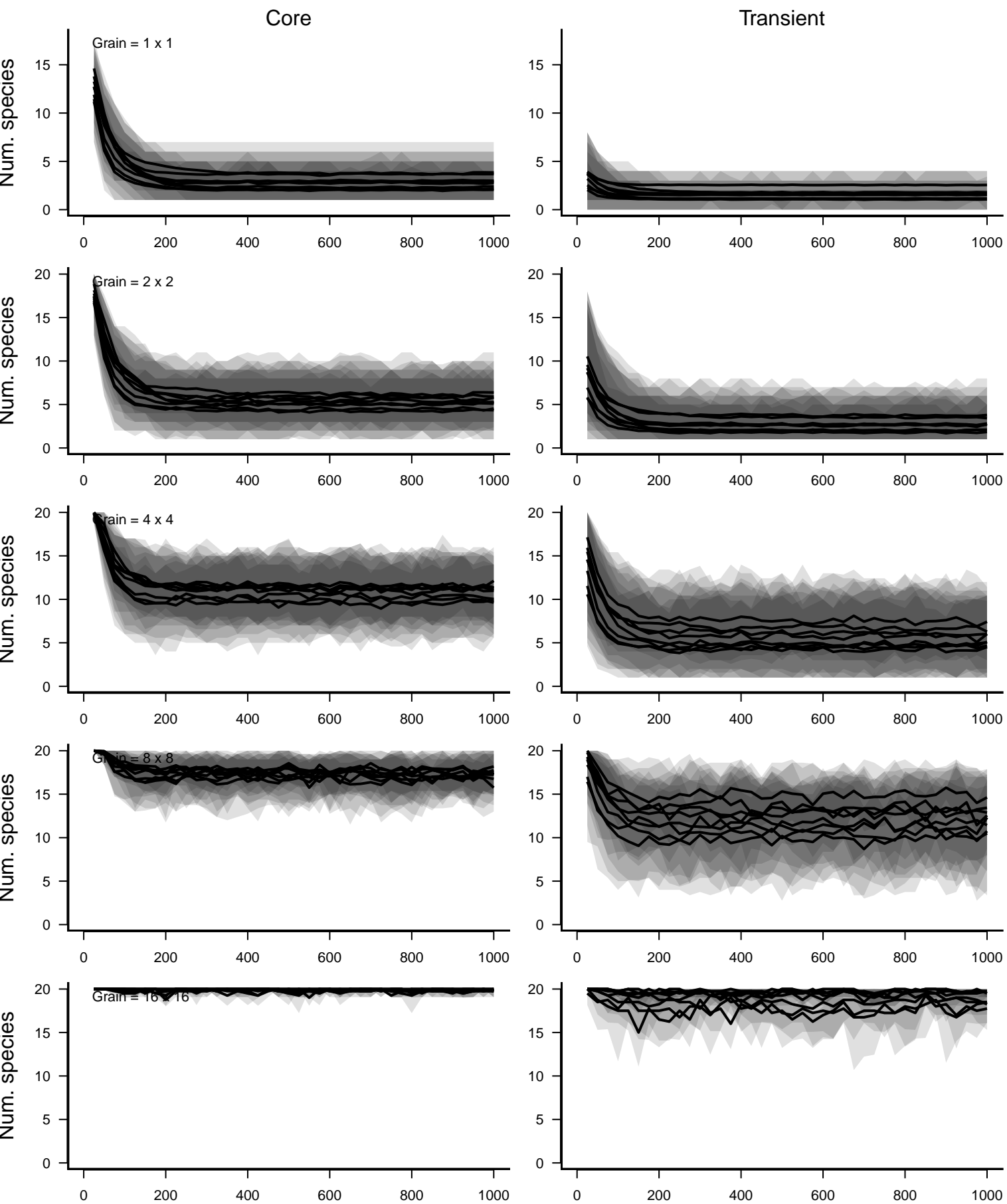
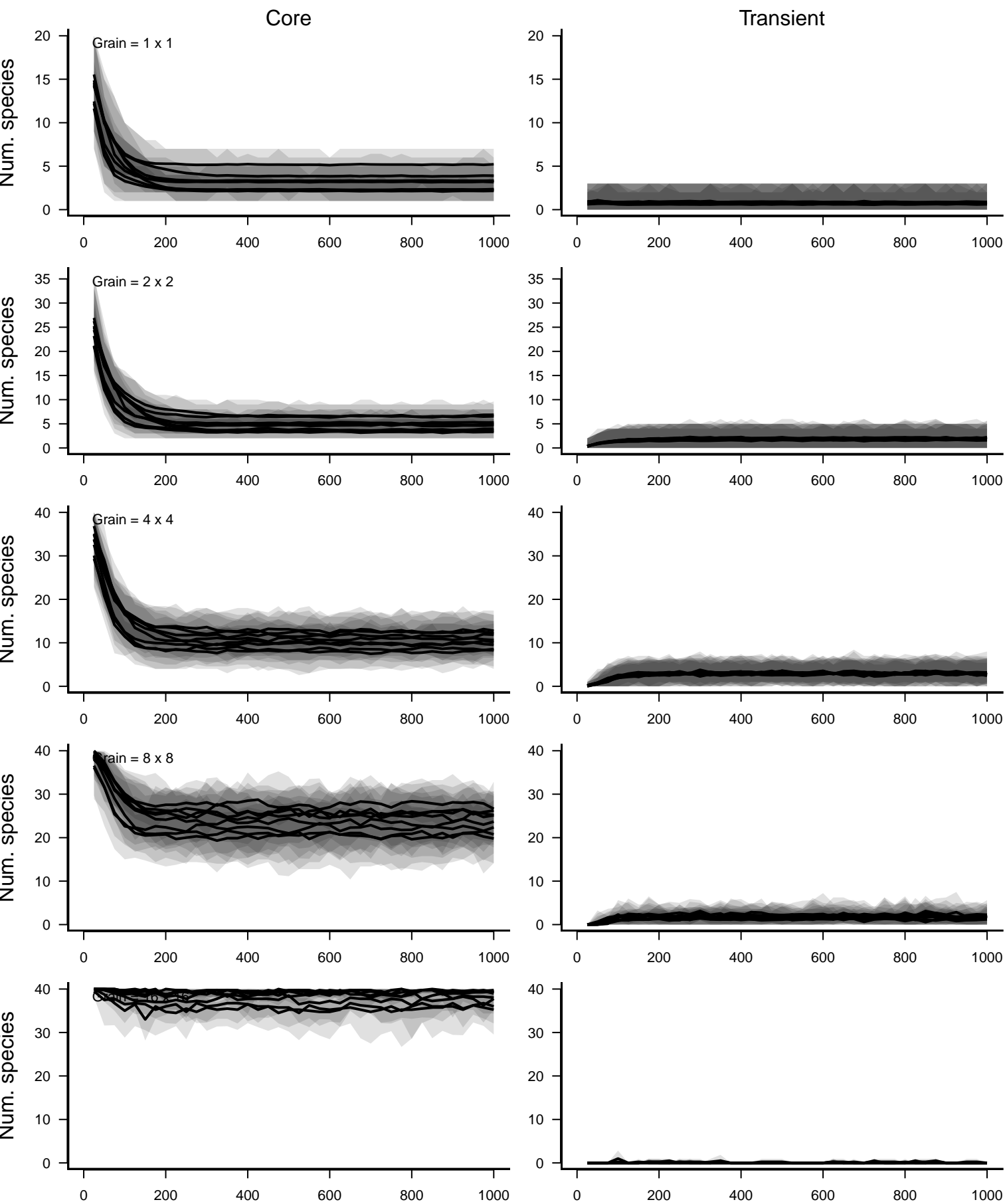


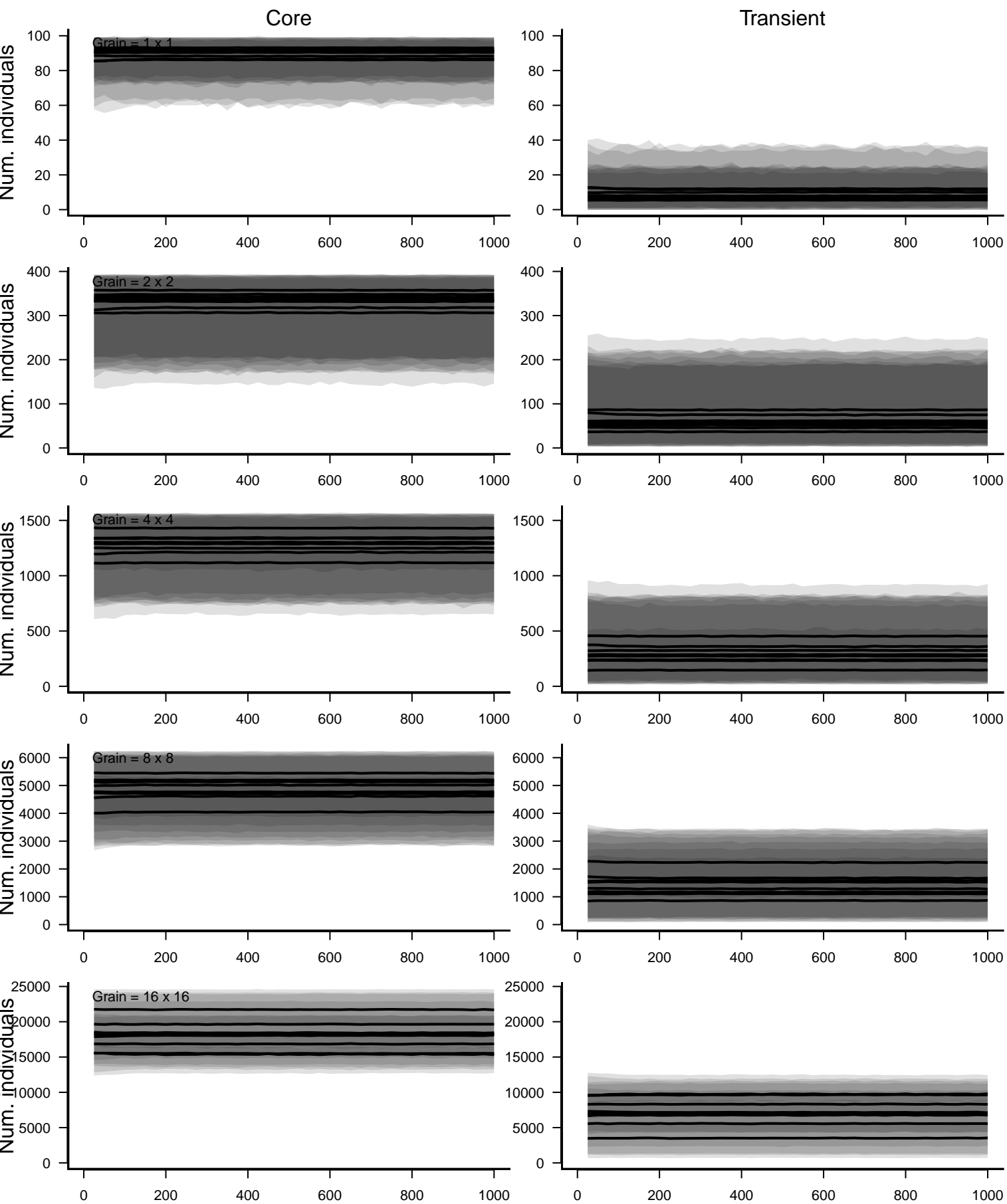
Birth rate-based categories: detection prob. = 1



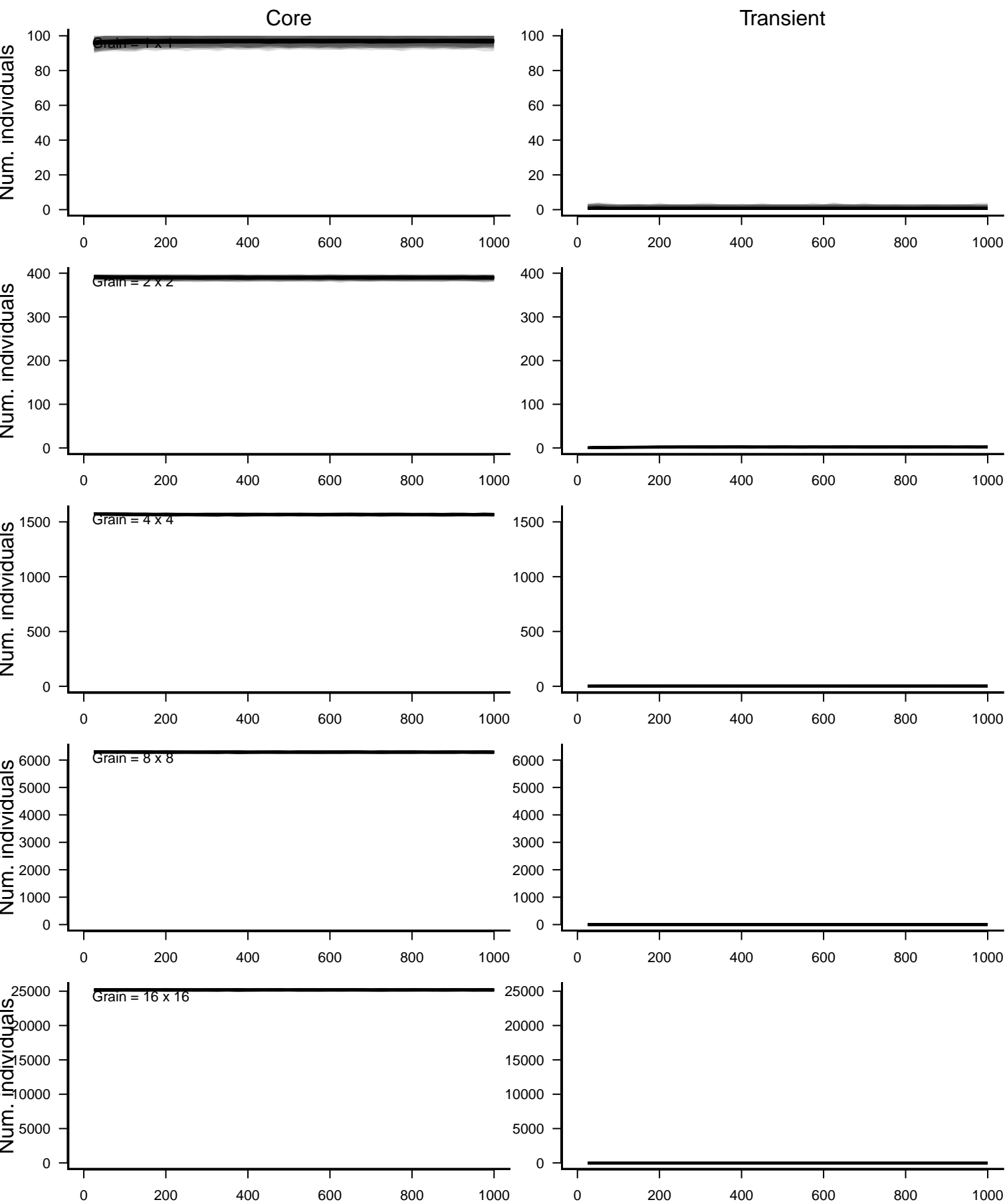
# Temporal occupancy-based categories: detection prob. = 1



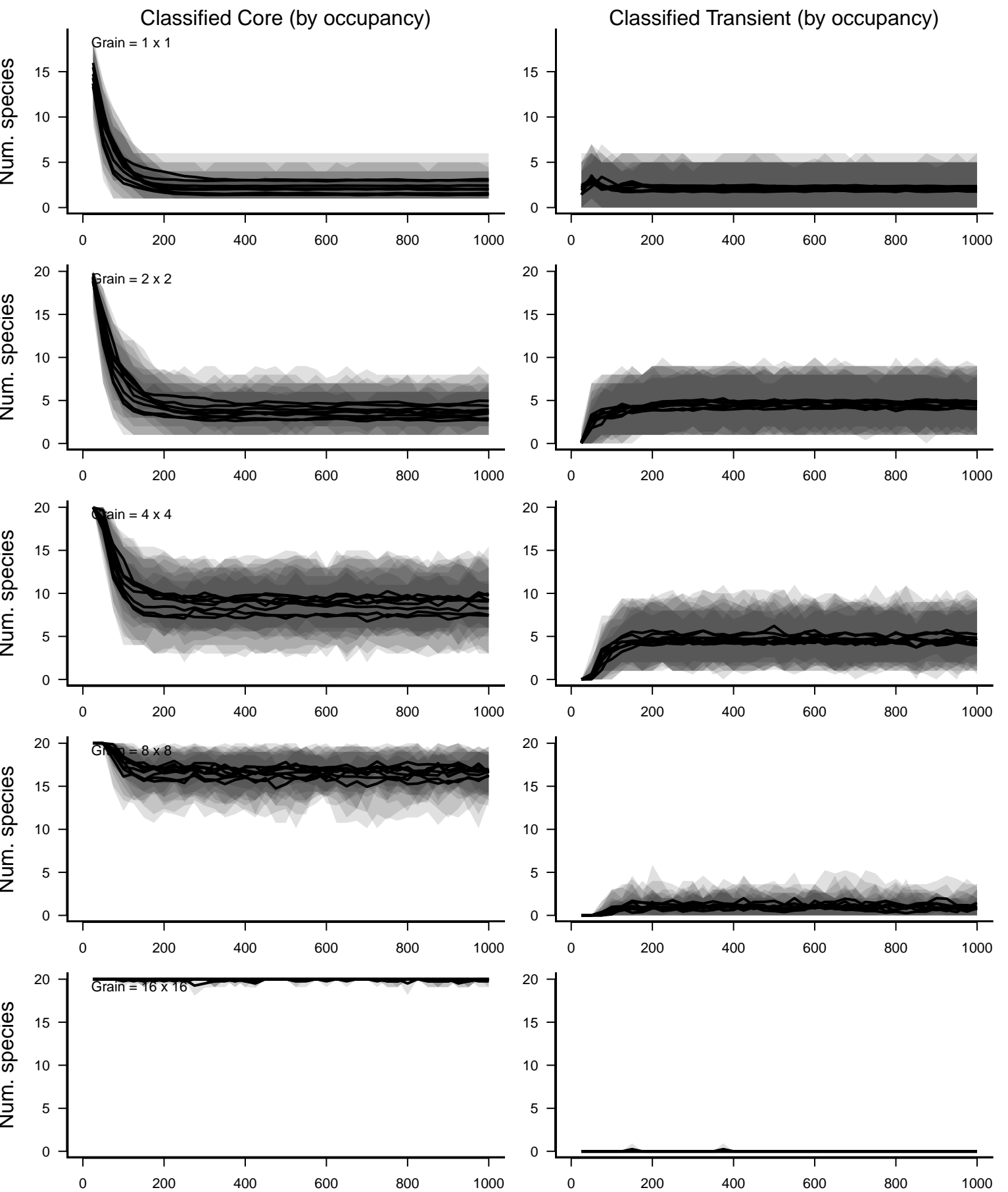
Birth rate–based categories: detection prob. = 1



Temporal occupancy-based categories: detection prob. = 1

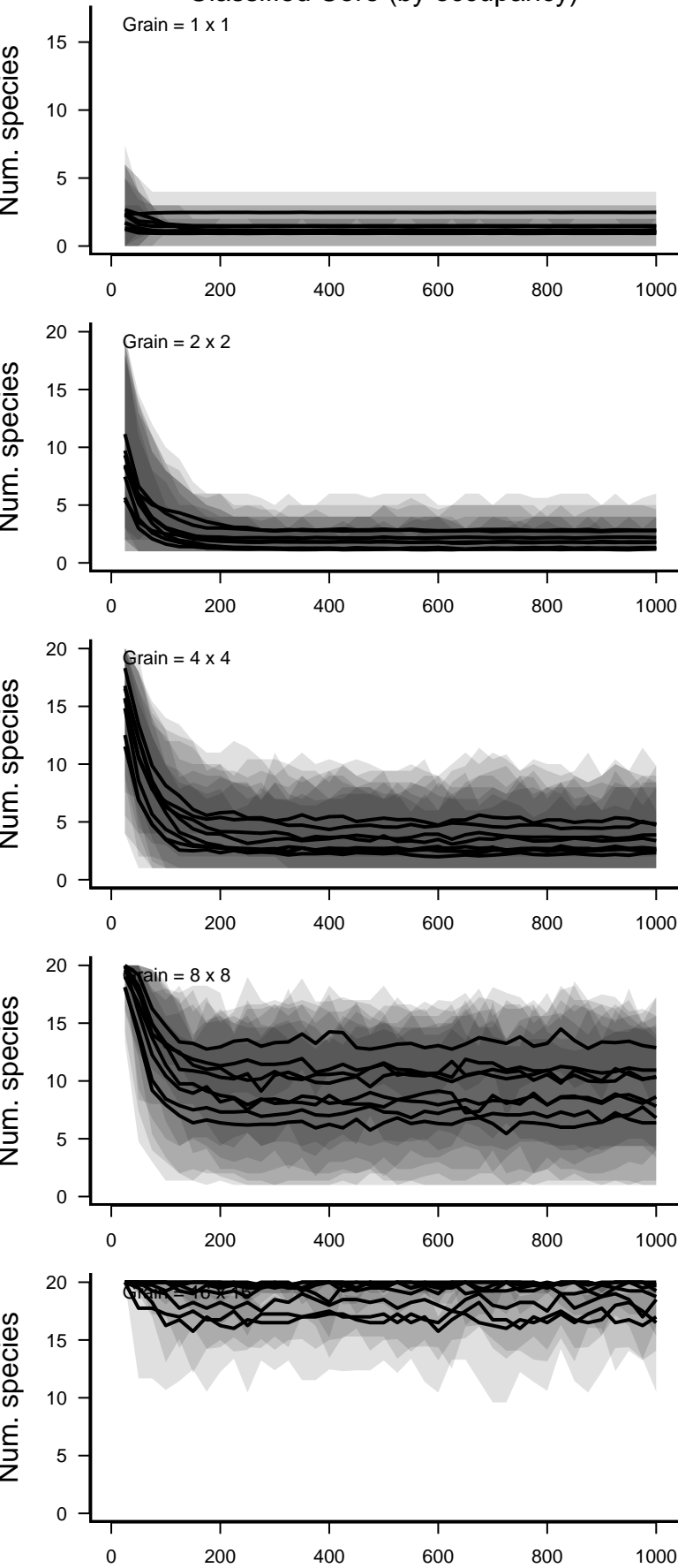


Birth rate–based Core Species: detection prob. = 1

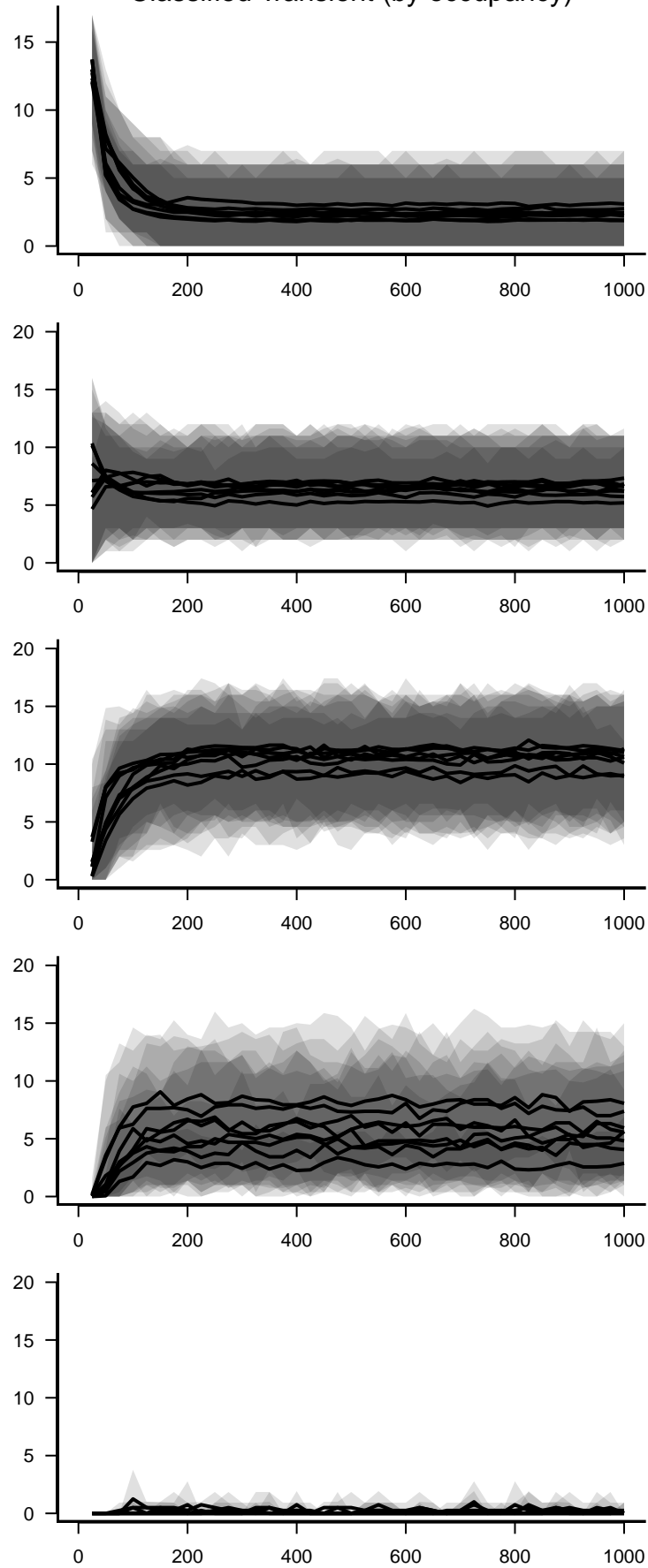


# Birth rate–based Transient Species: detection prob. = 1

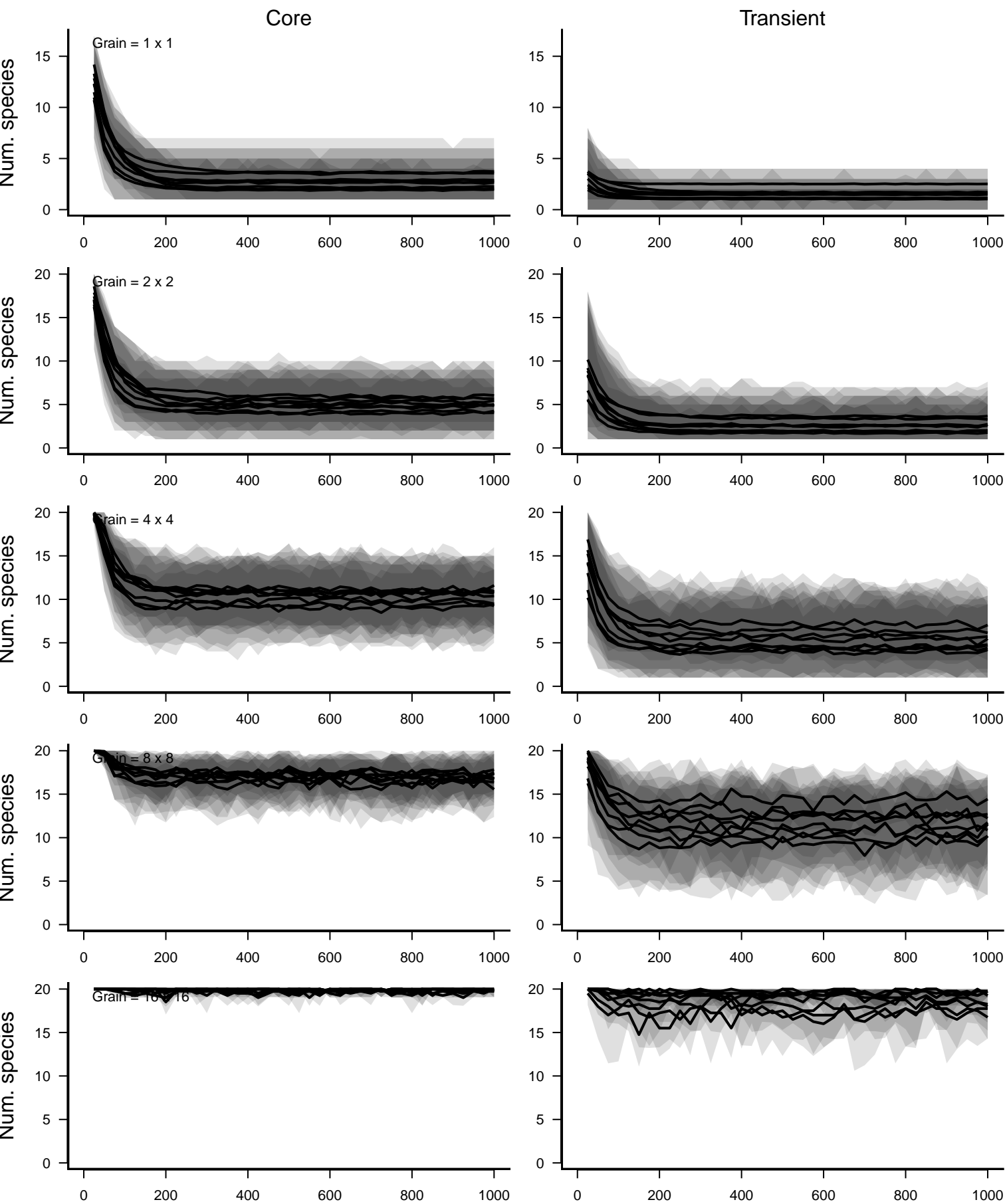
## Classified Core (by occupancy)



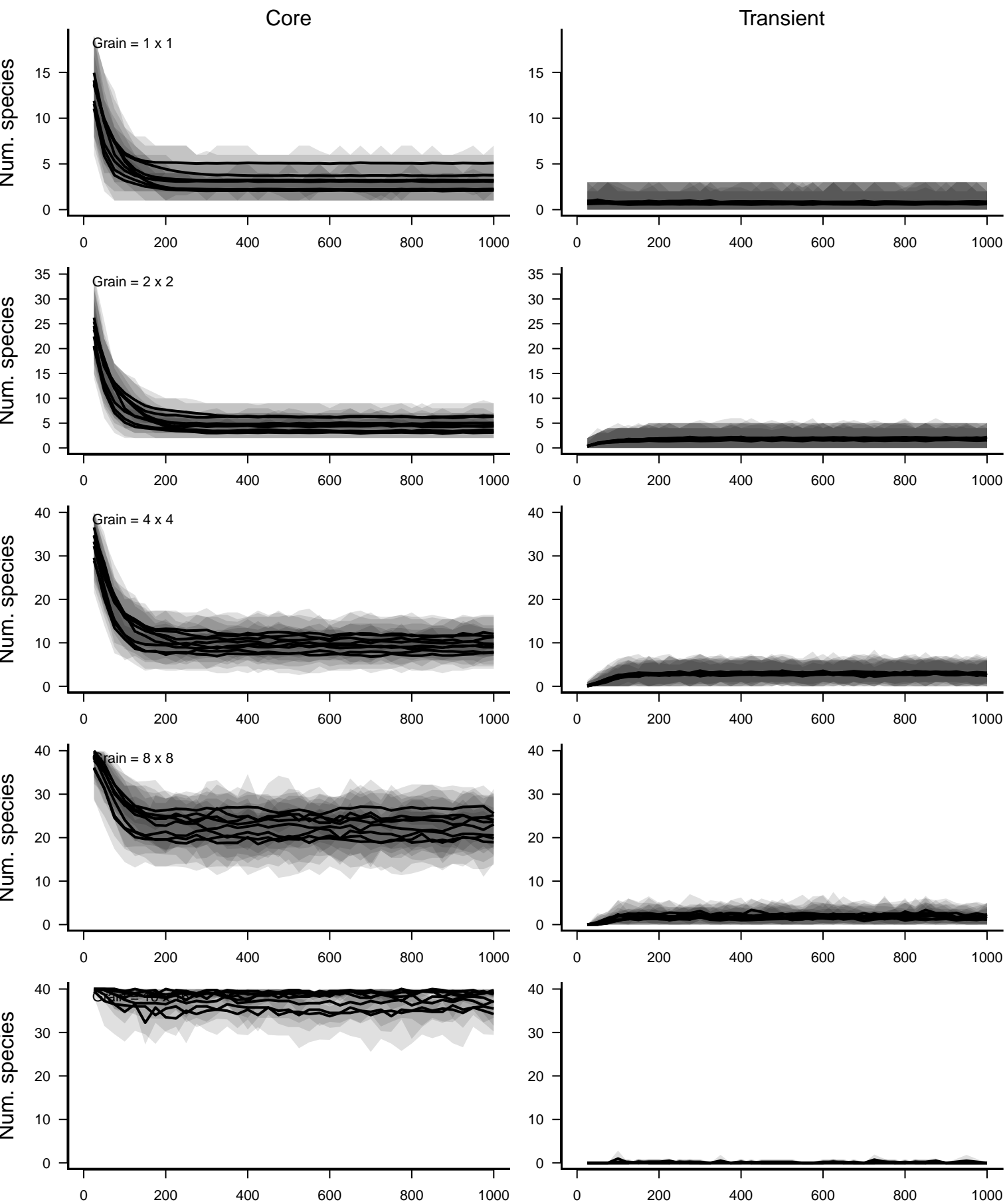
## Classified Transient (by occupancy)



Birth rate–based categories: detection prob. = 0.9

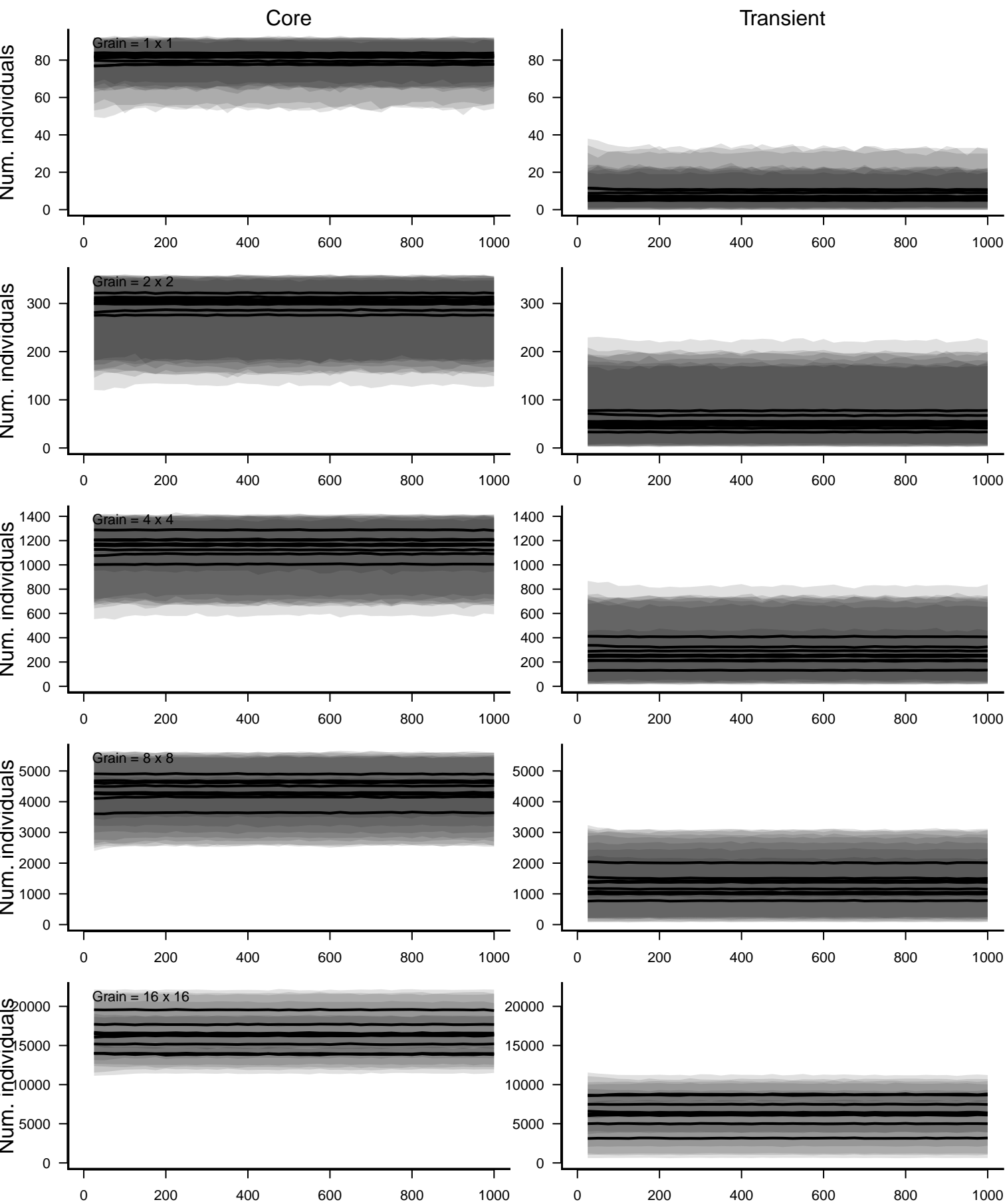


Temporal occupancy-based categories: detection prob. = 0.9

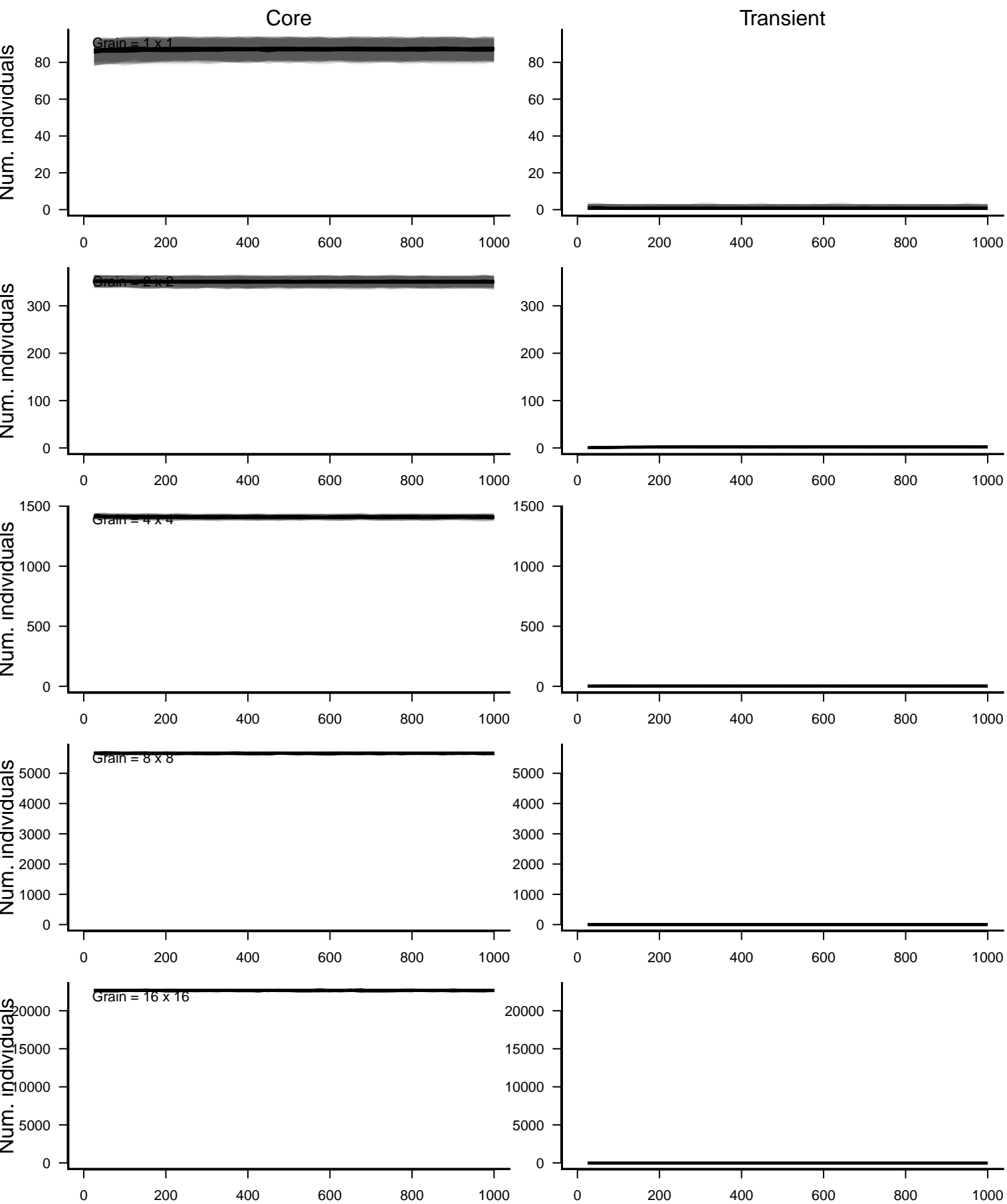




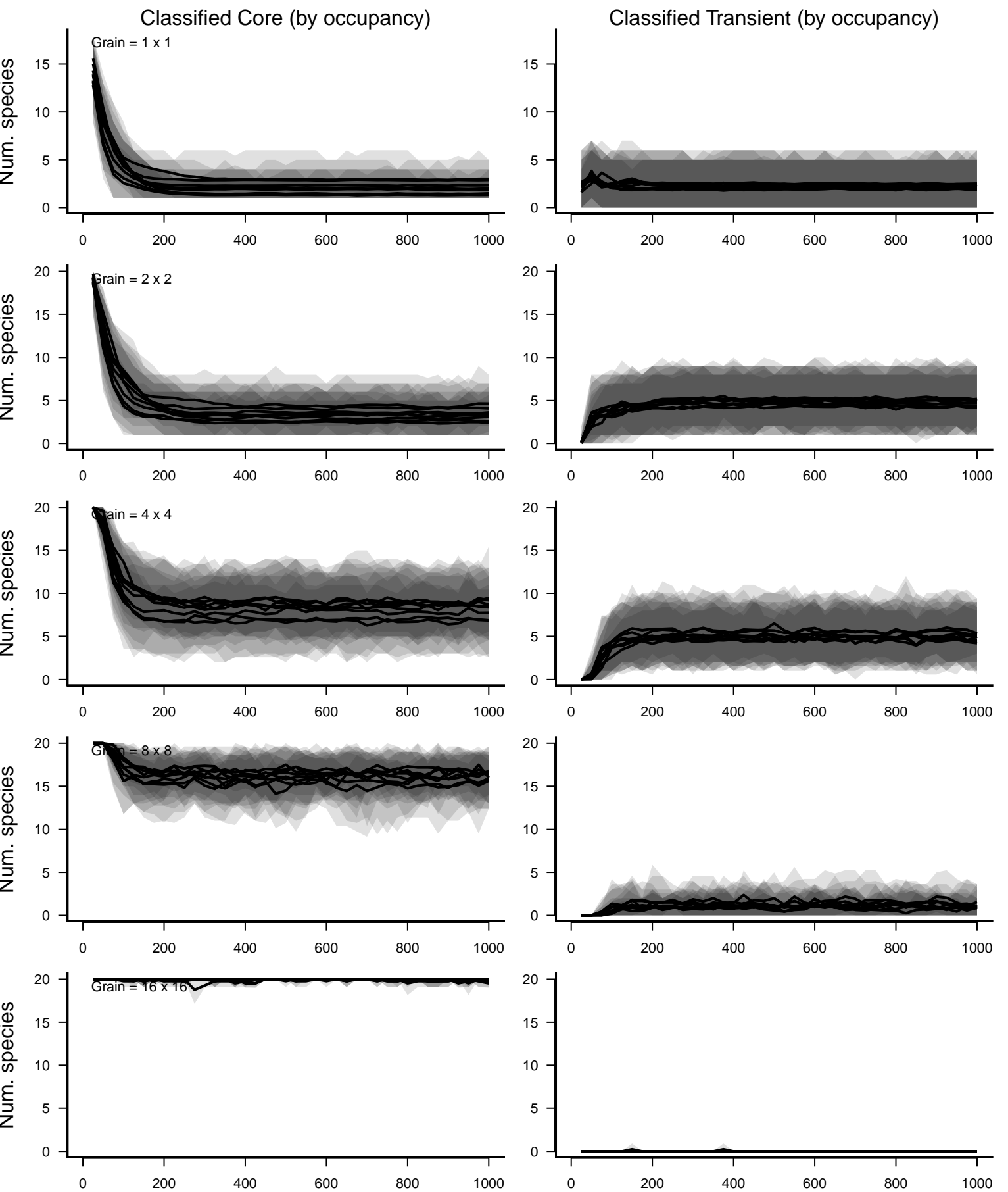
Birth rate–based categories: detection prob. = 0.9



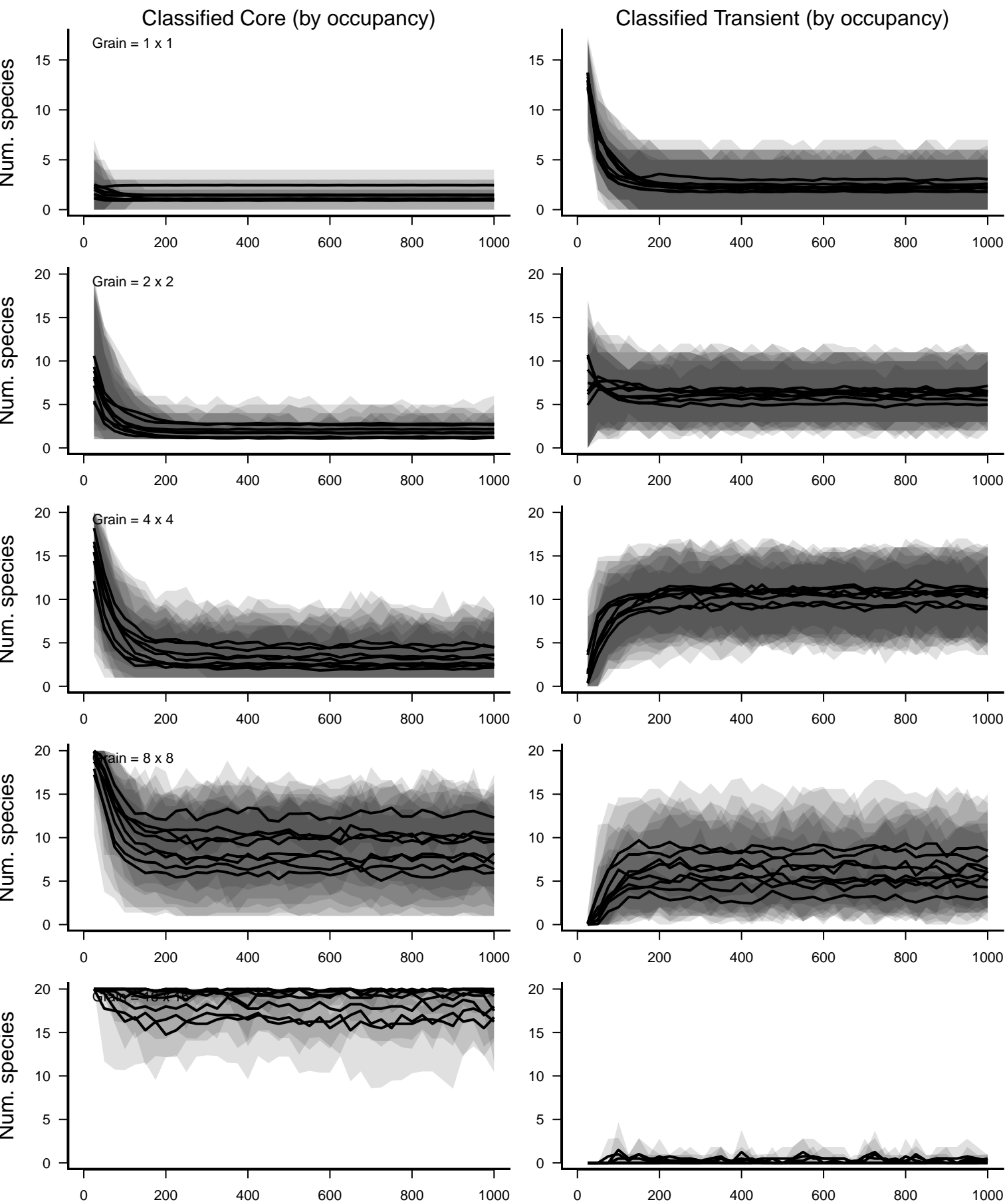
Temporal occupancy-based categories: detection prob. = 0.9



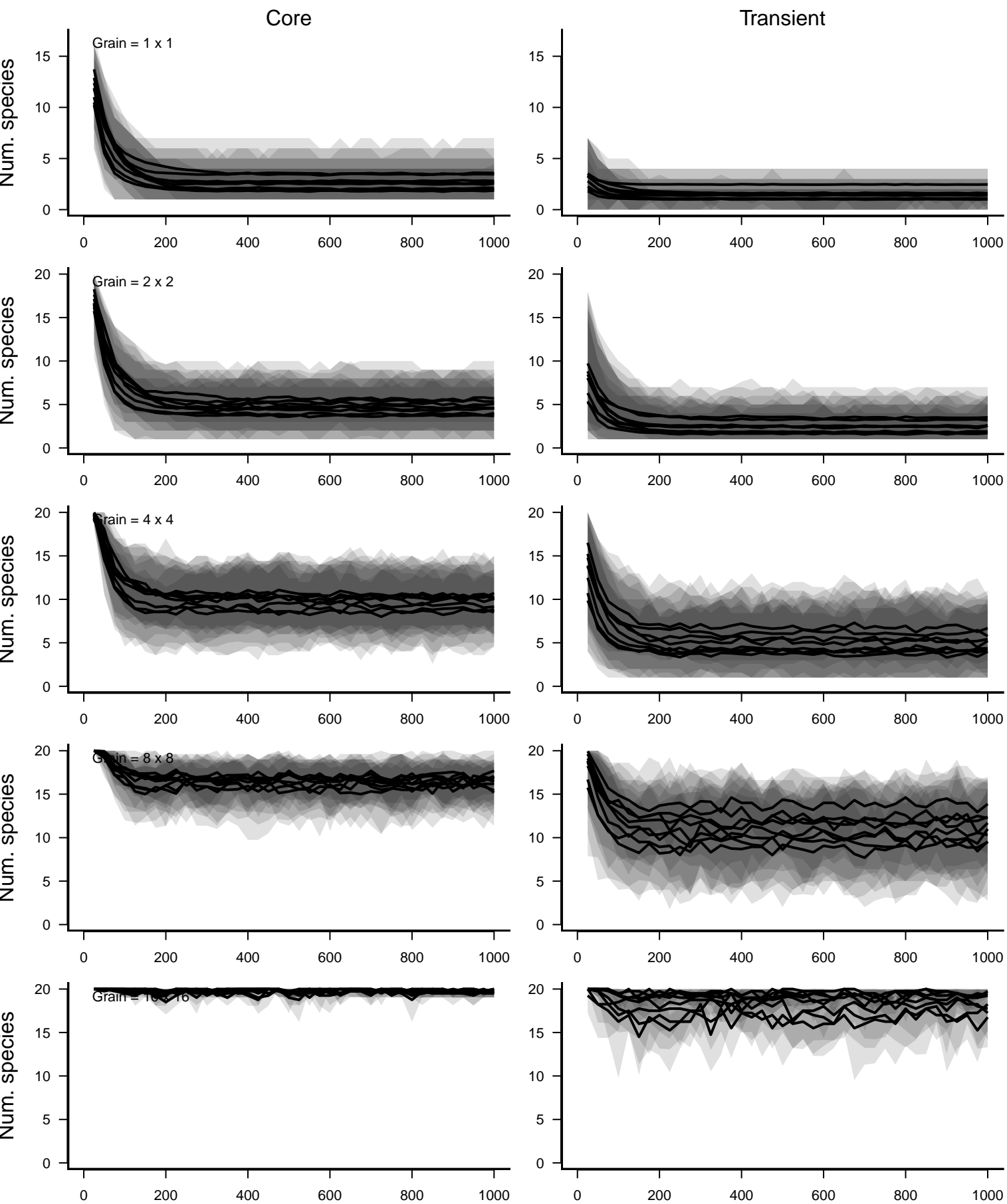
Birth rate–based Core Species: detection prob. = 0.9



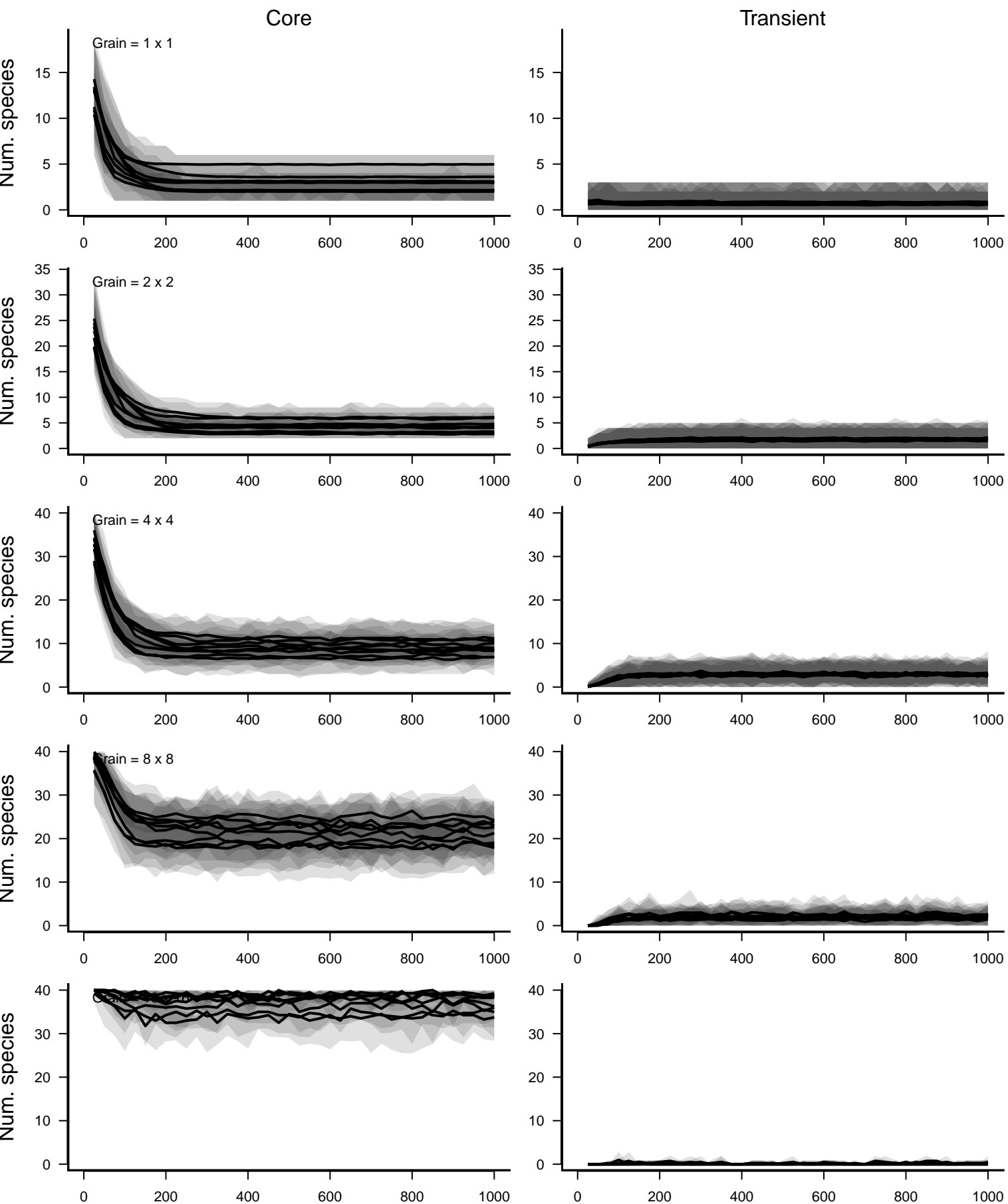
Birth rate–based Transient Species: detection prob. = 0.9



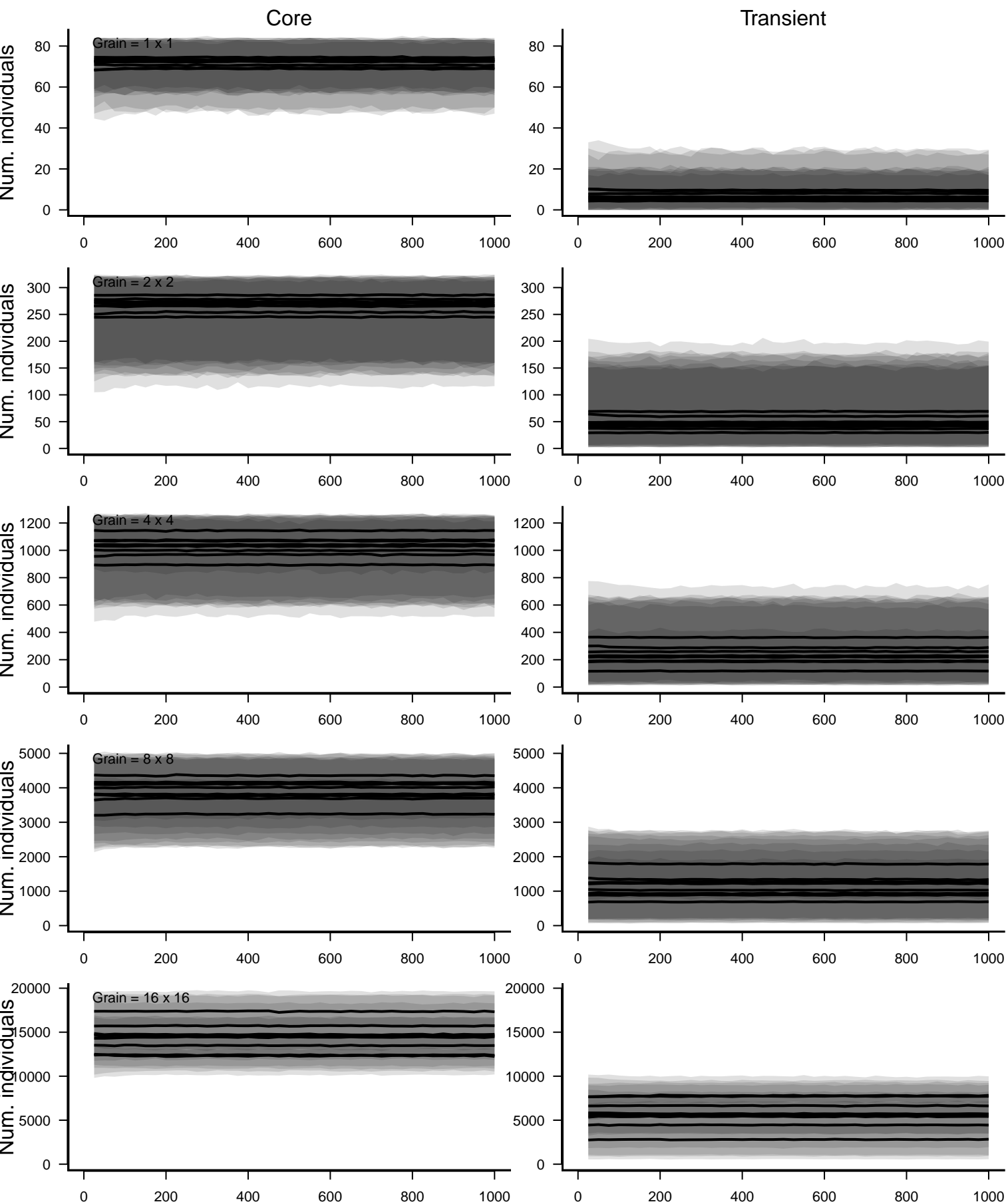
Birth rate–based categories: detection prob. = 0.8



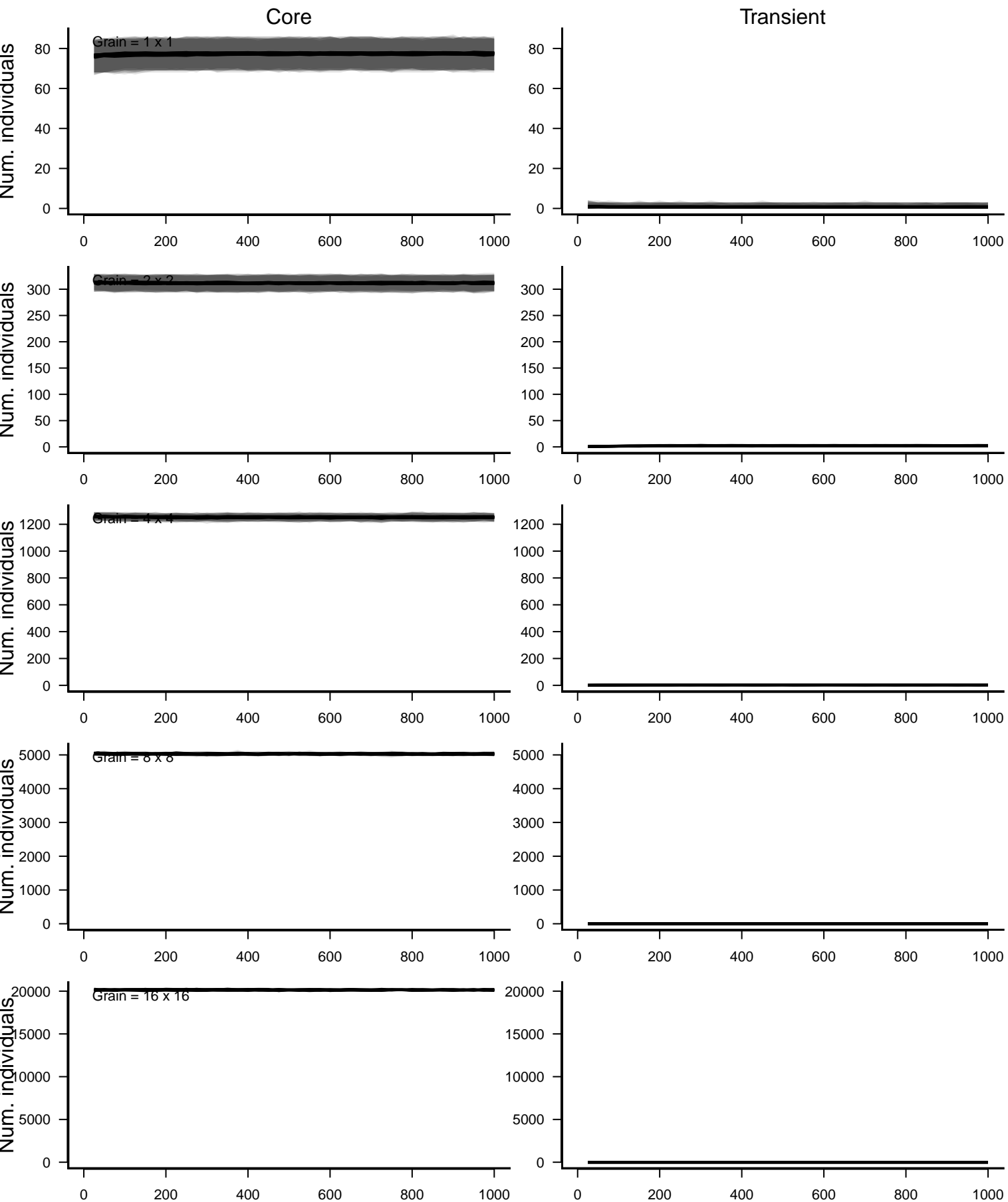
Temporal occupancy-based categories: detection prob. = 0.8



Birth rate–based categories: detection prob. = 0.8

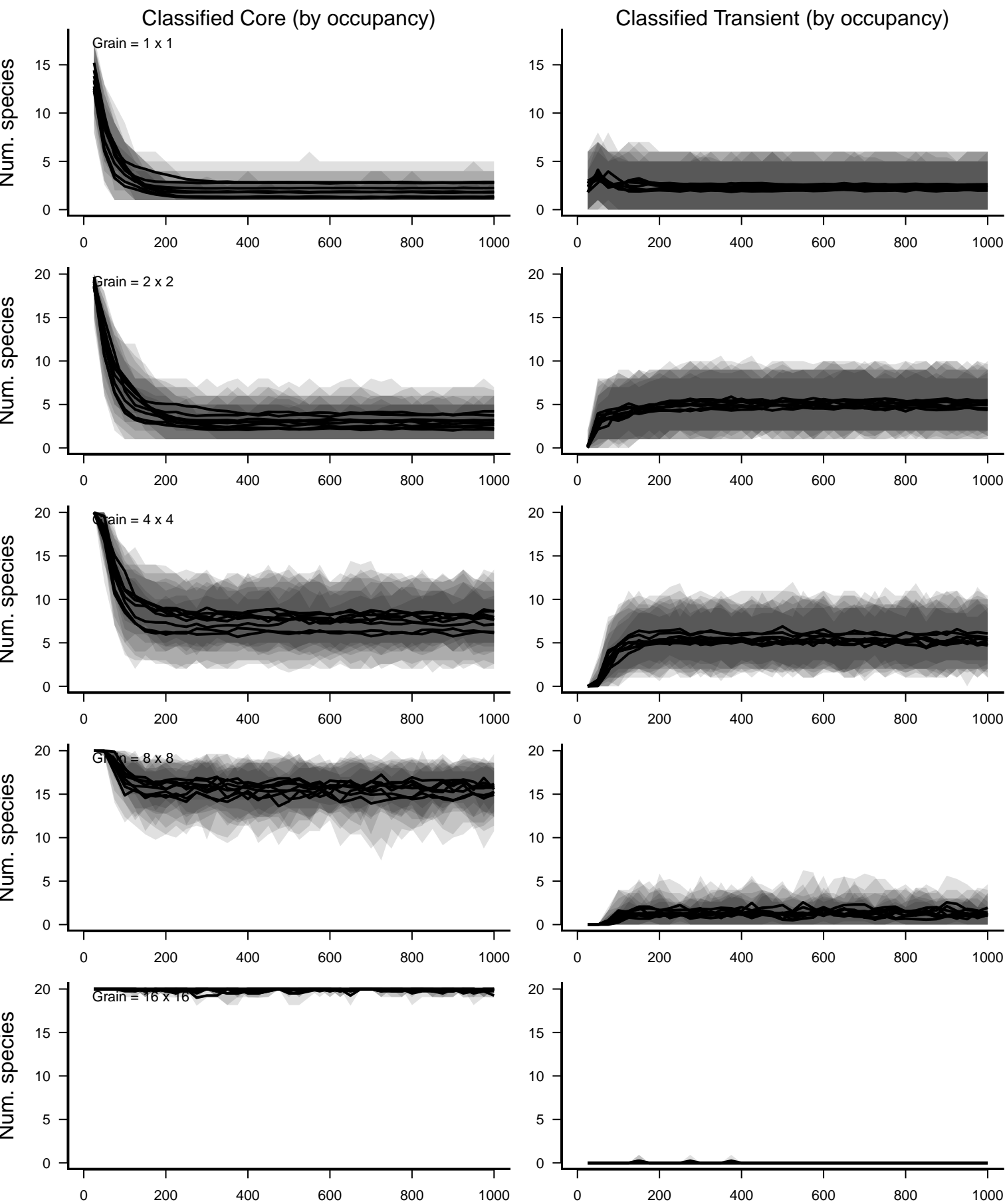


Temporal occupancy-based categories: detection prob. = 0.8



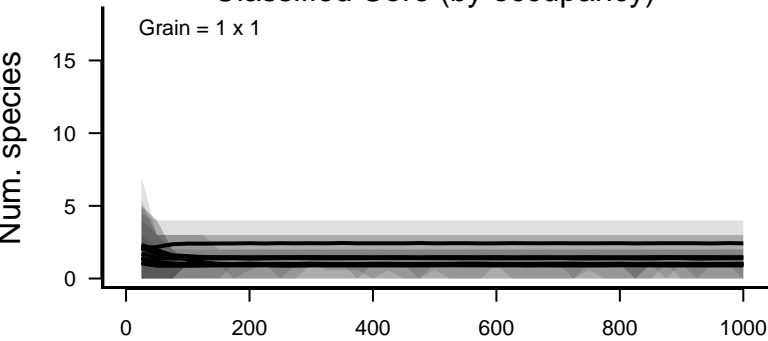


Birth rate–based Core Species: detection prob. = 0.8

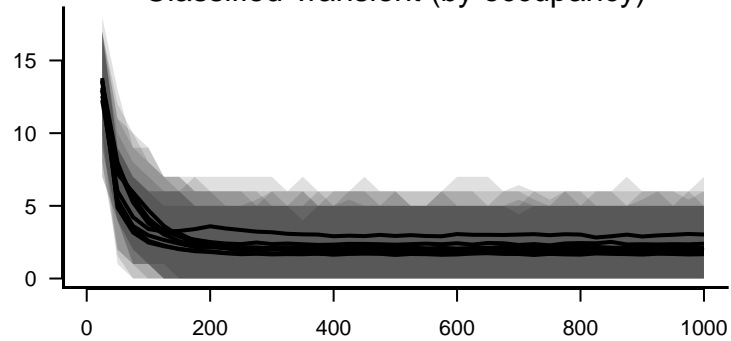


## Birth rate–based Transient Species: detection prob. = 0.8

### Classified Core (by occupancy)



### Classified Transient (by occupancy)



Grain = 2 x 2

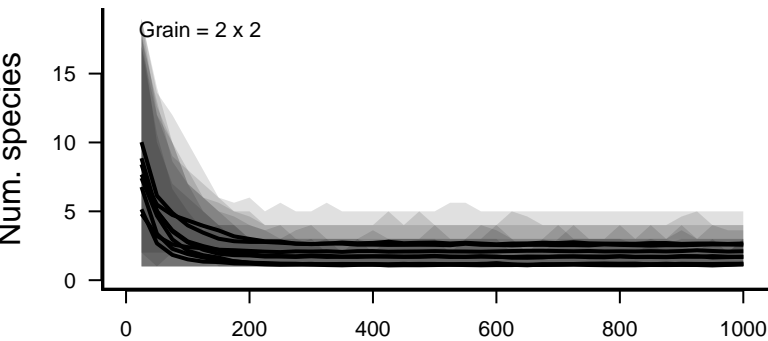
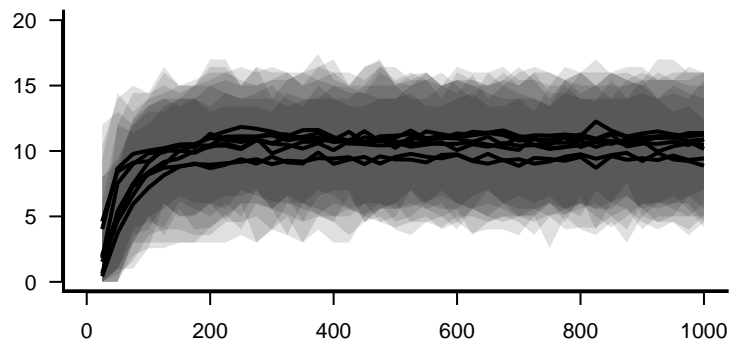
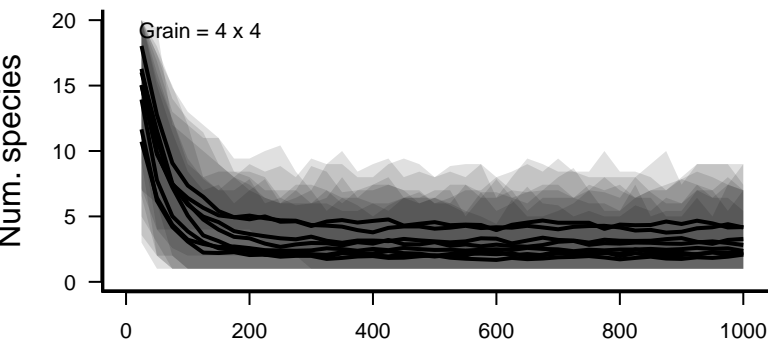
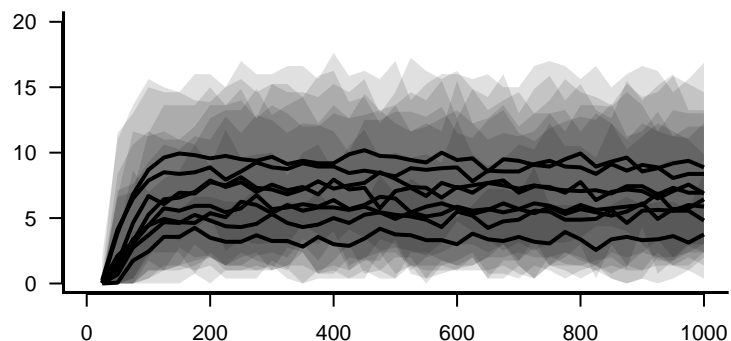
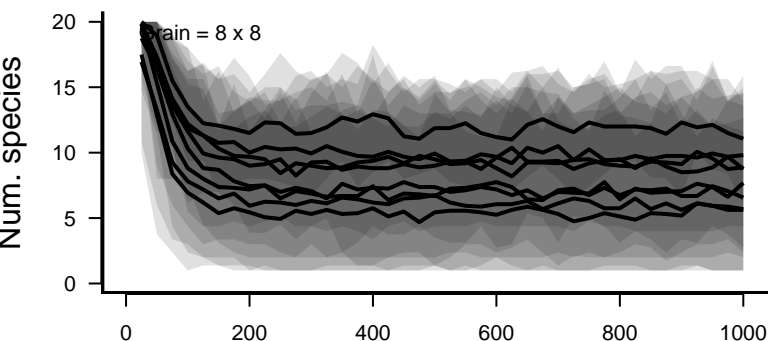


Figure 1 is a line plot showing the evolution of the mean and standard deviation of the estimated parameters over 1000 iterations. The x-axis represents iterations from 0 to 1000, and the y-axis represents parameter values from 0 to 15. Multiple lines represent different parameters, showing convergence to stable values around 5-7. Shaded regions indicate the standard deviation.

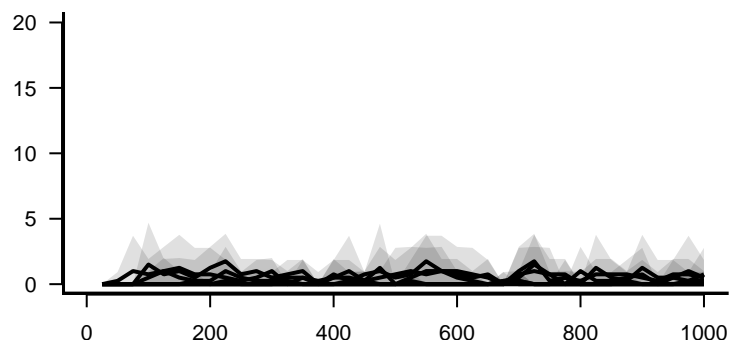
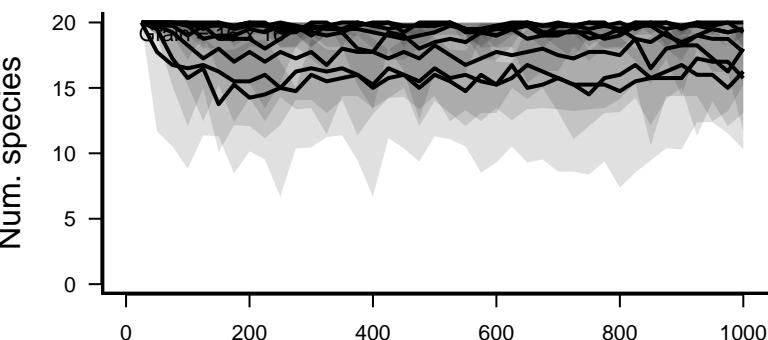
Grain = 4 x 4



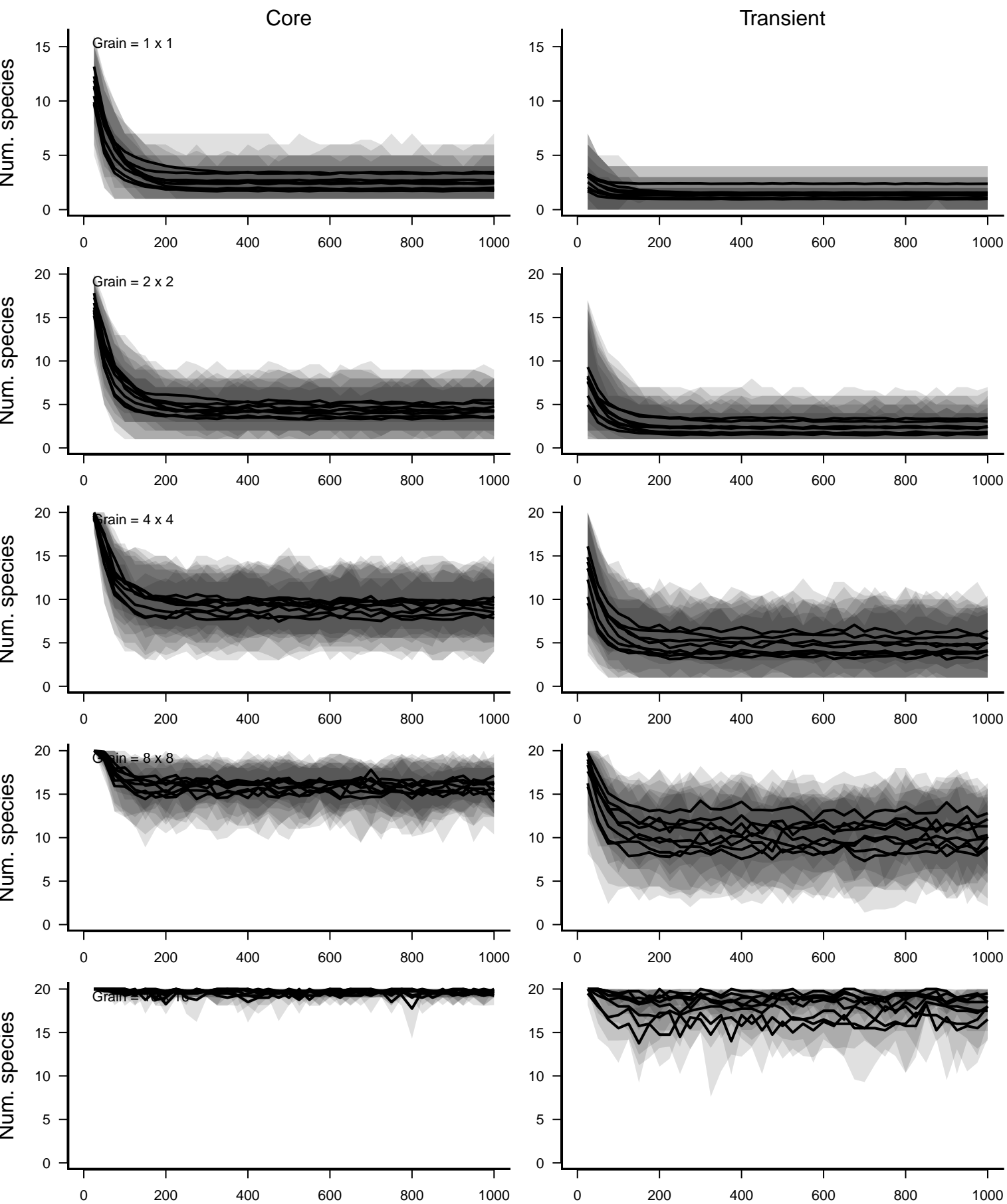
Brain = 8 x 8



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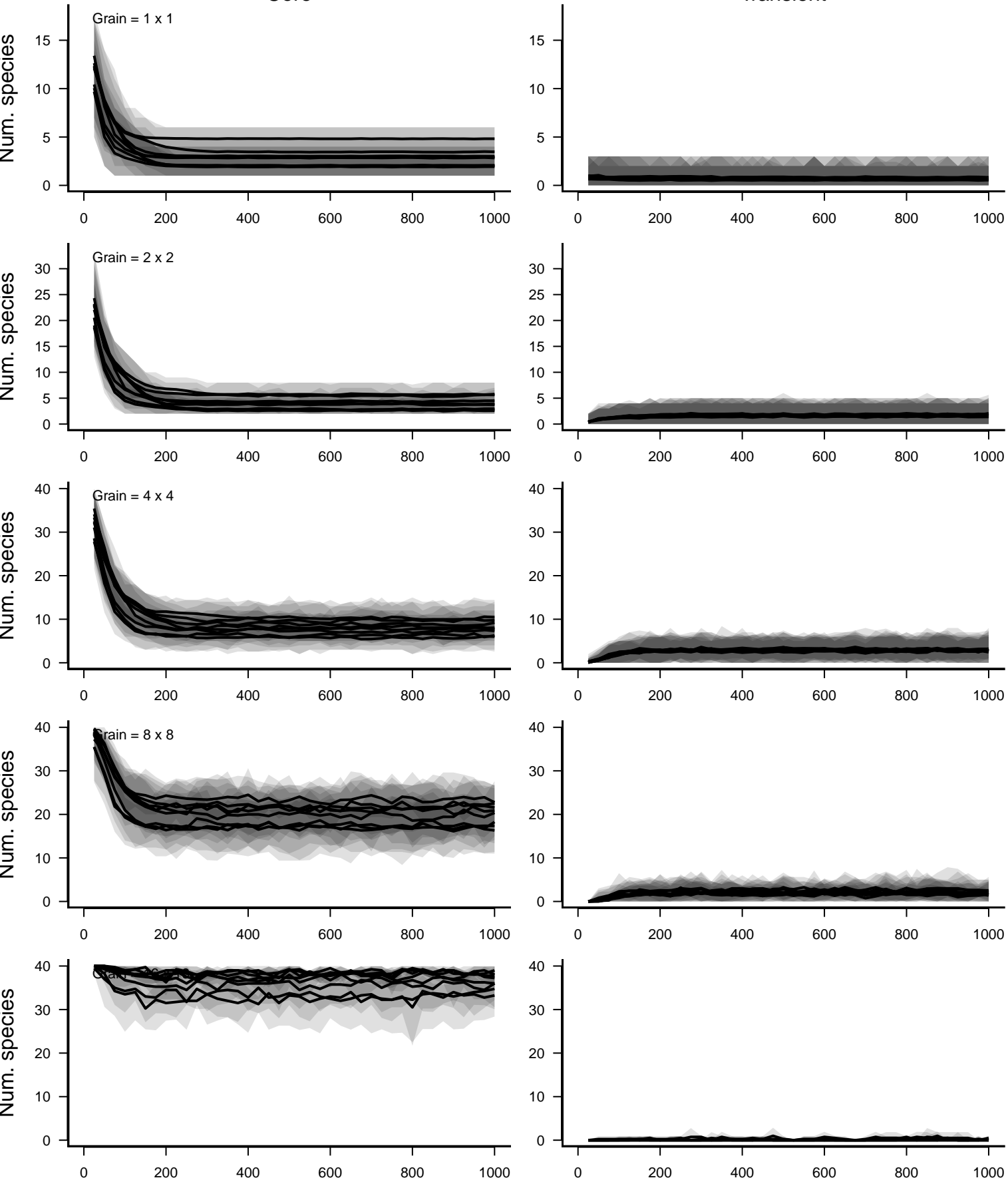
Birth rate–based categories: detection prob. = 0.7



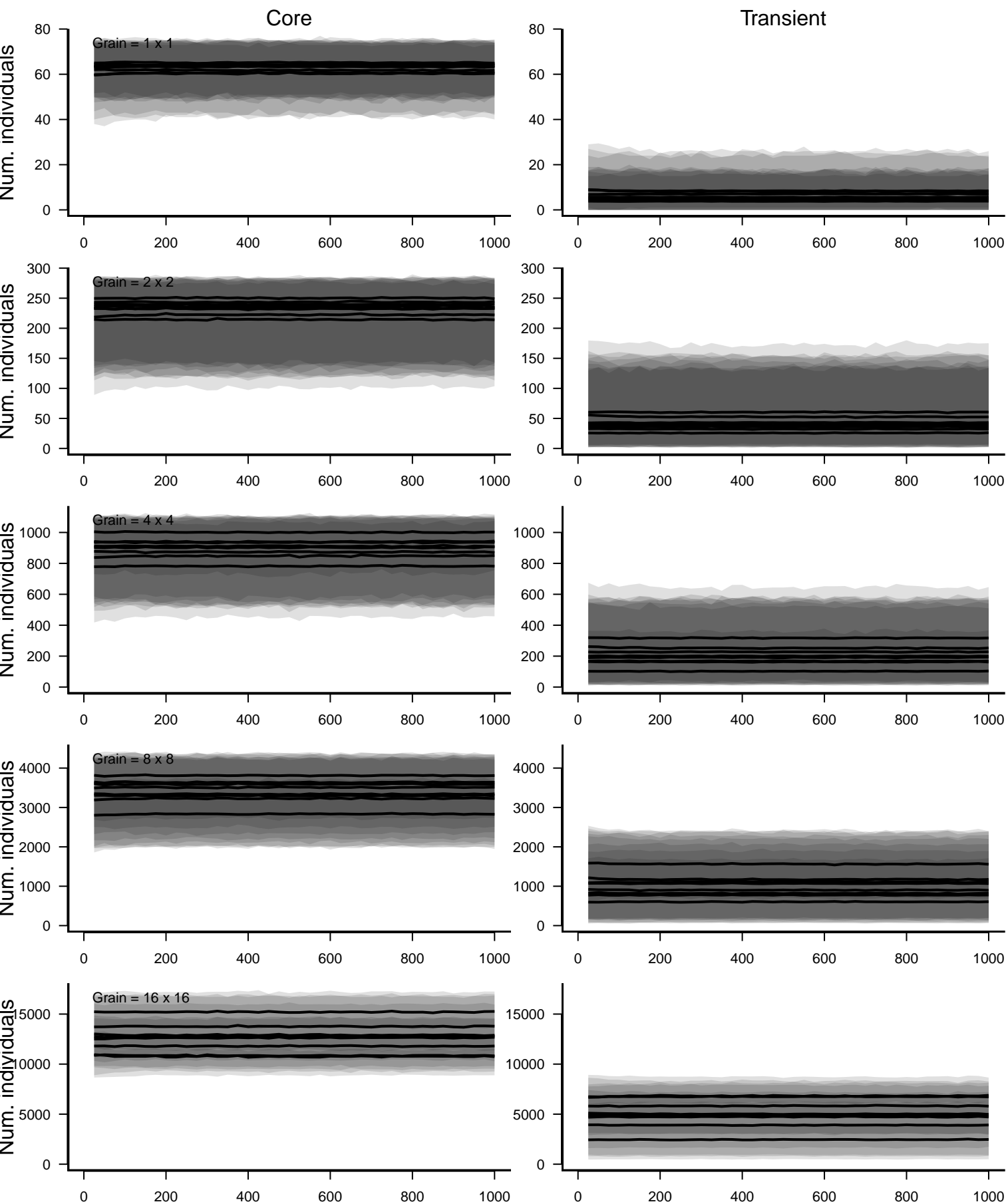
Temporal occupancy-based categories: detection prob. = 0.7

## Core

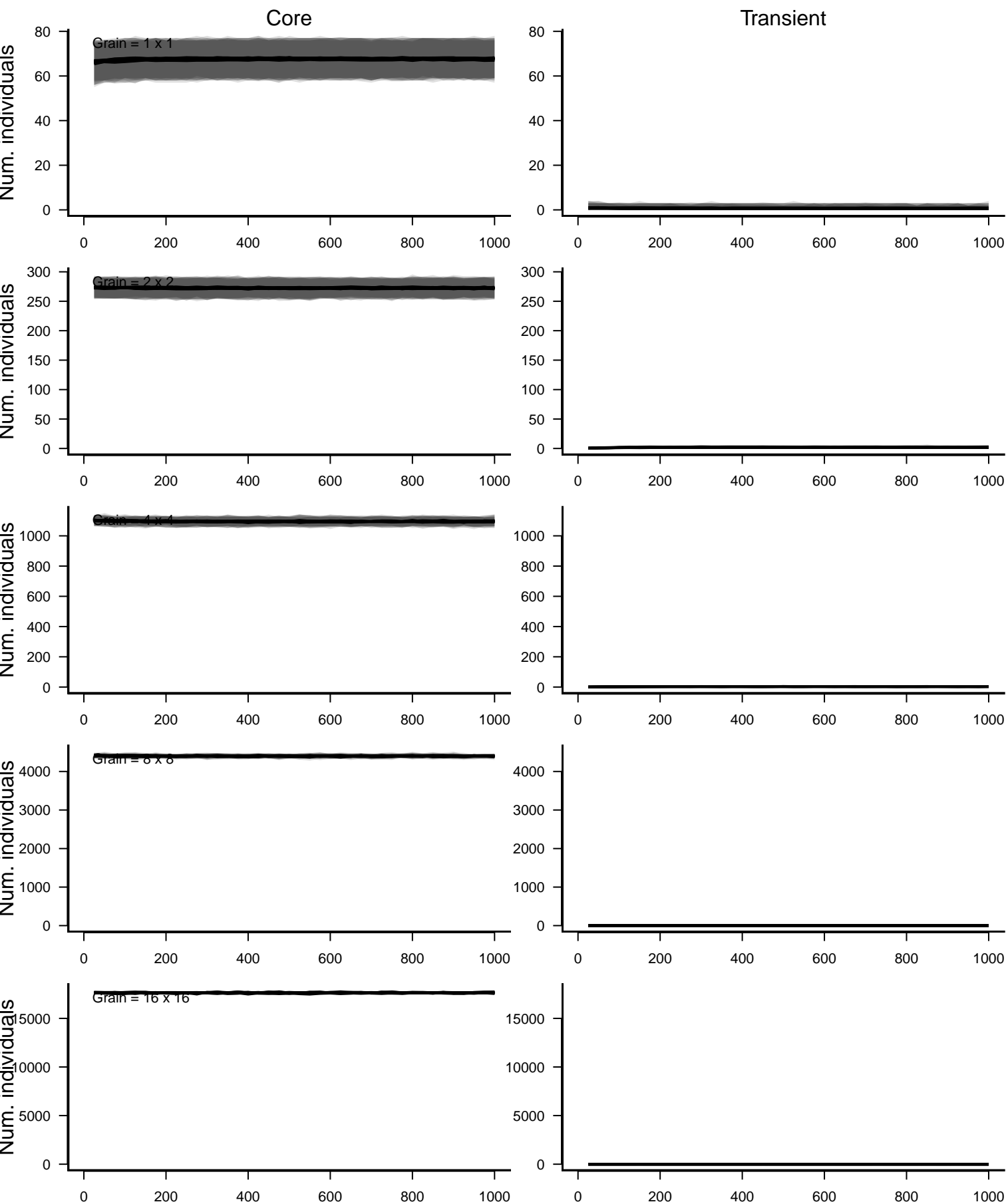
Transient



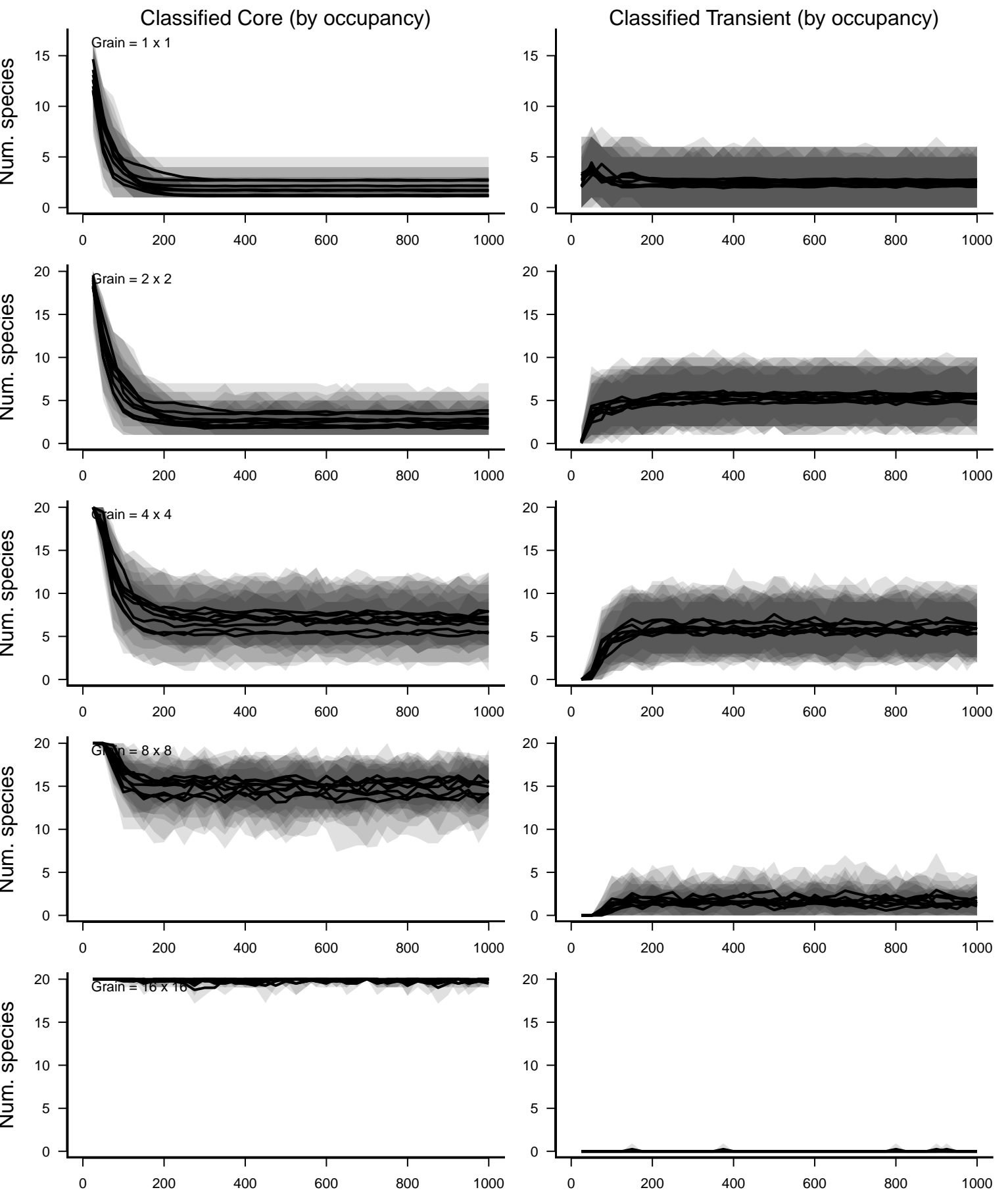
Birth rate–based categories: detection prob. = 0.7



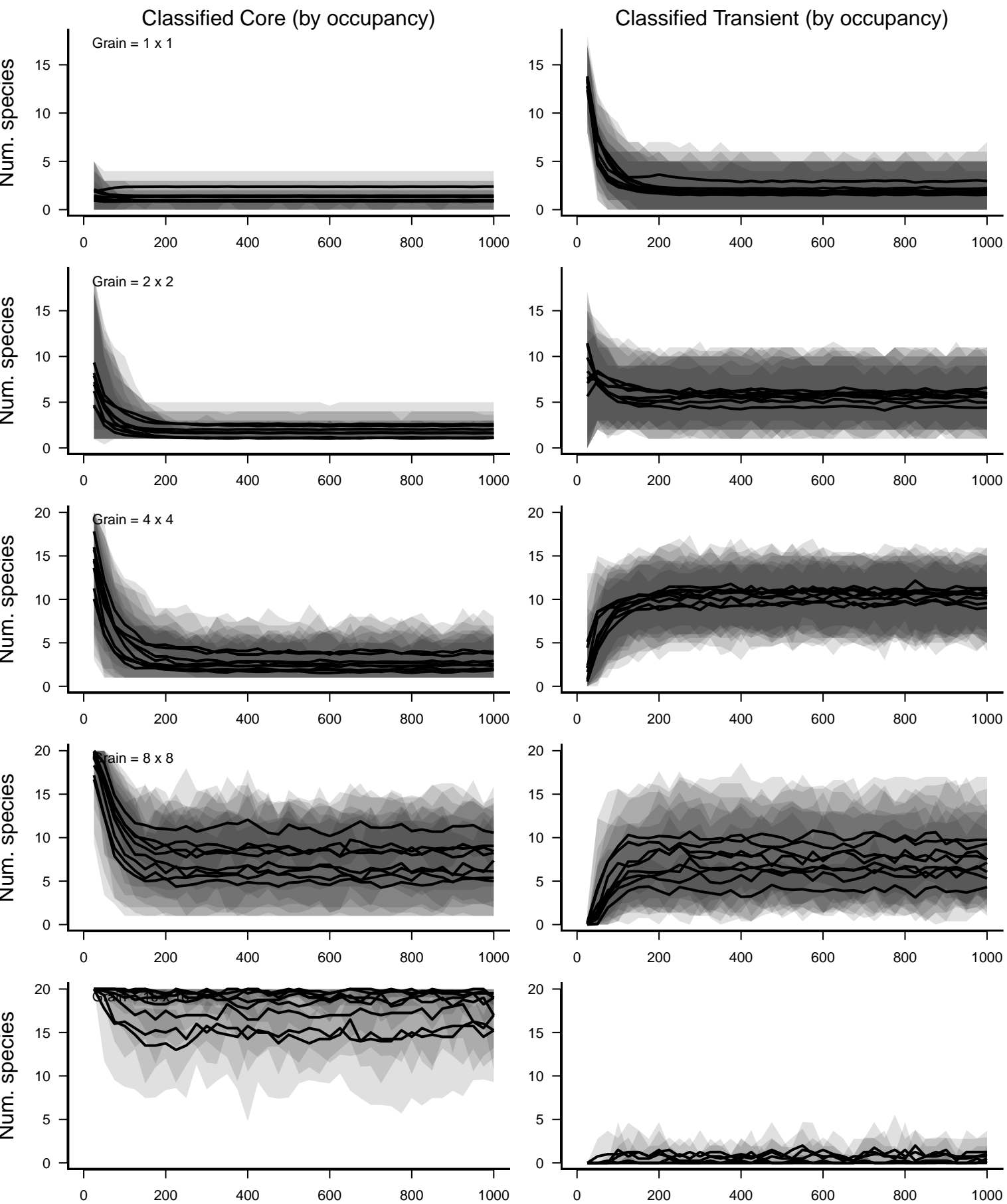
Temporal occupancy-based categories: detection prob. = 0.7



Birth rate–based Core Species: detection prob. = 0.7

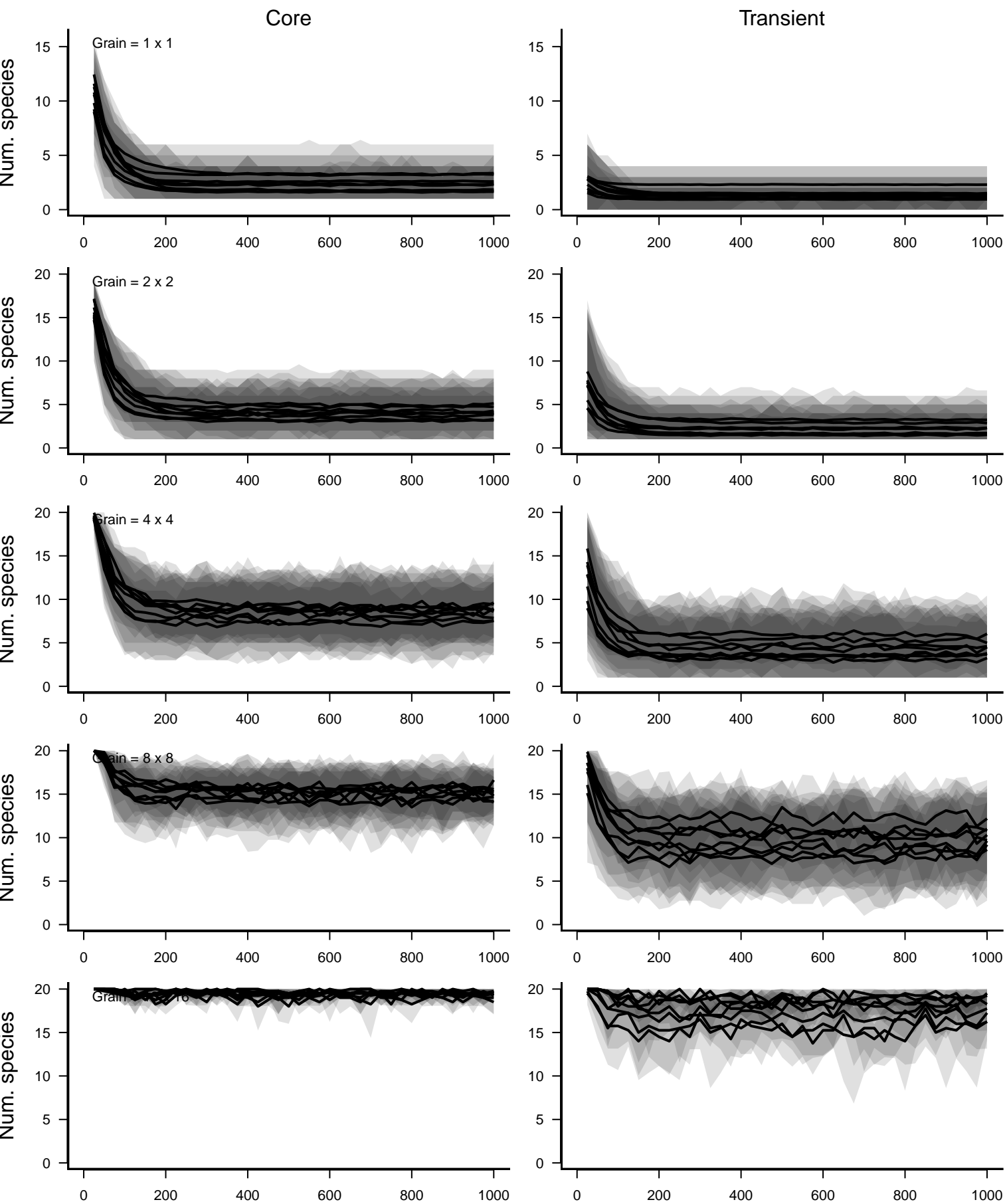


Birth rate–based Transient Species: detection prob. = 0.7

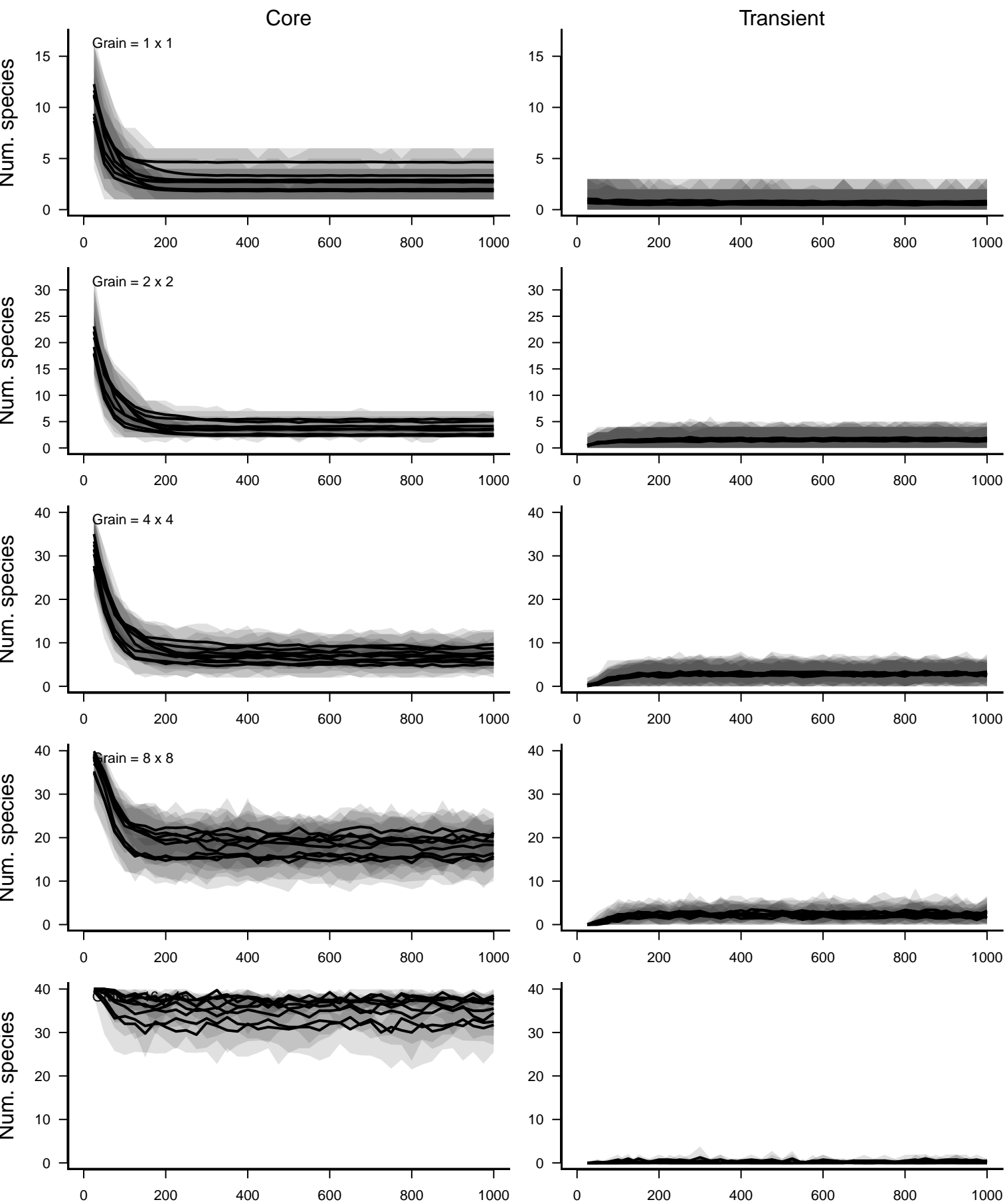




Birth rate-based categories: detection prob. = 0.6



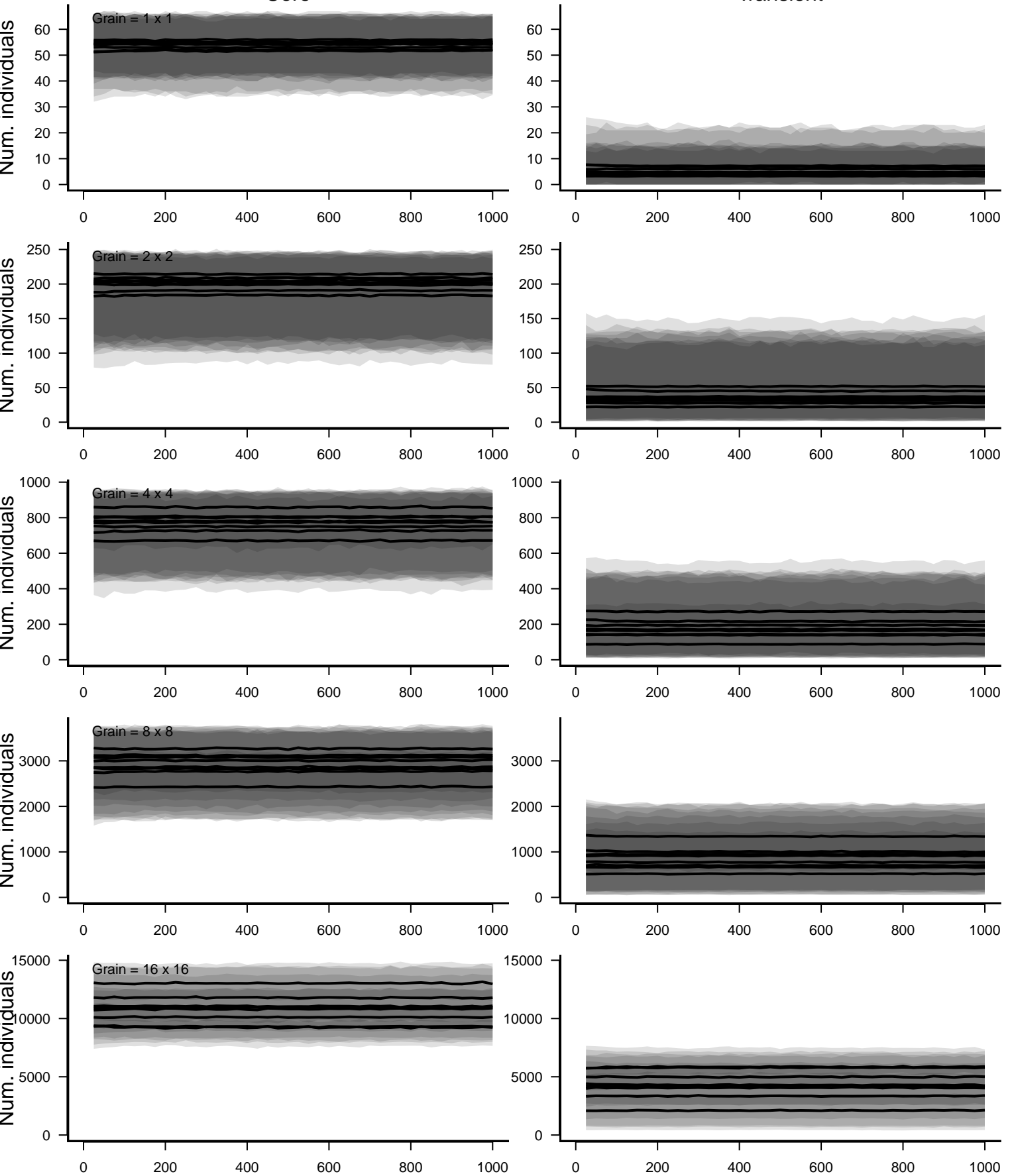
Temporal occupancy-based categories: detection prob. = 0.6



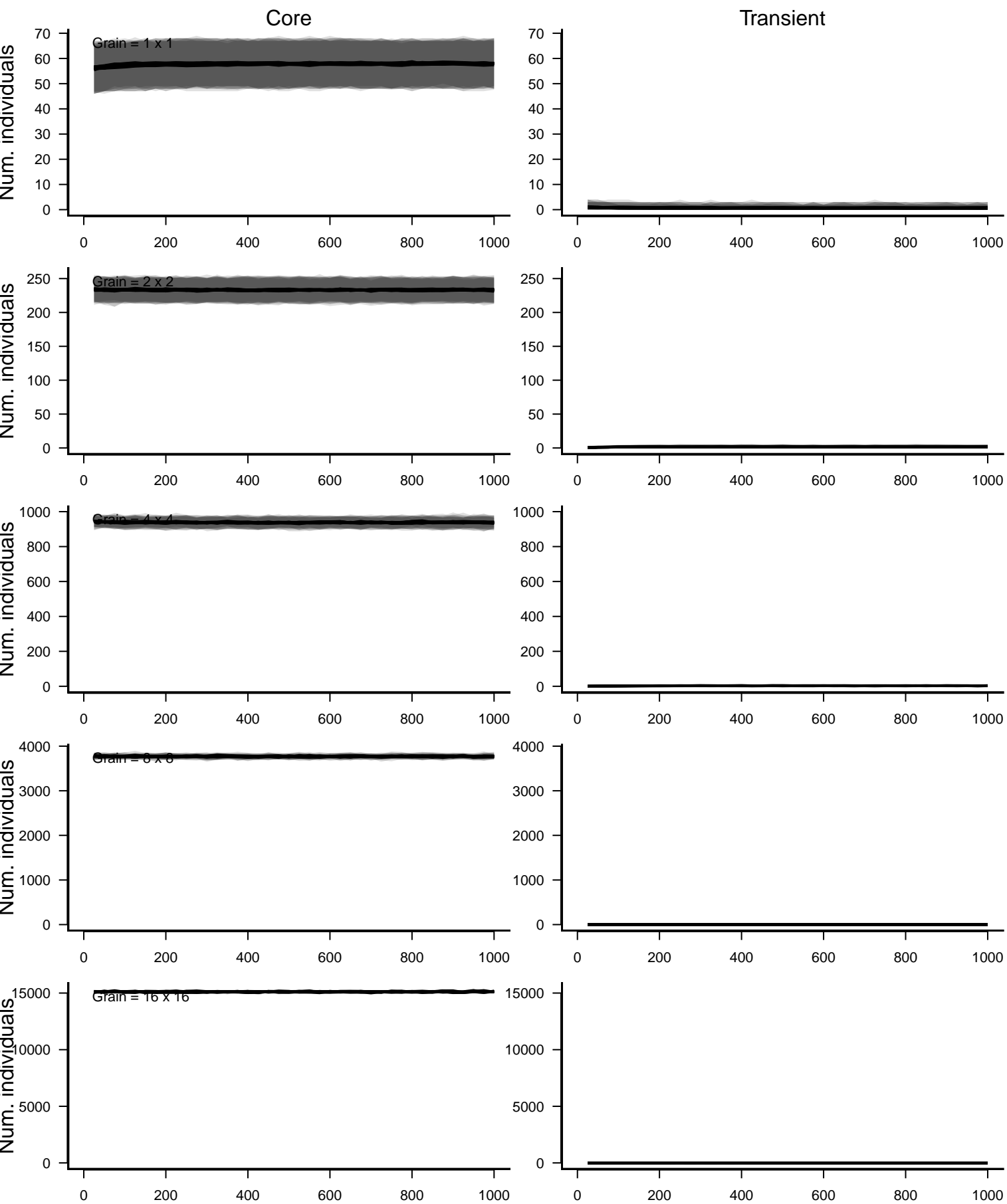
Birth rate–based categories: detection prob. = 0.6

## Core

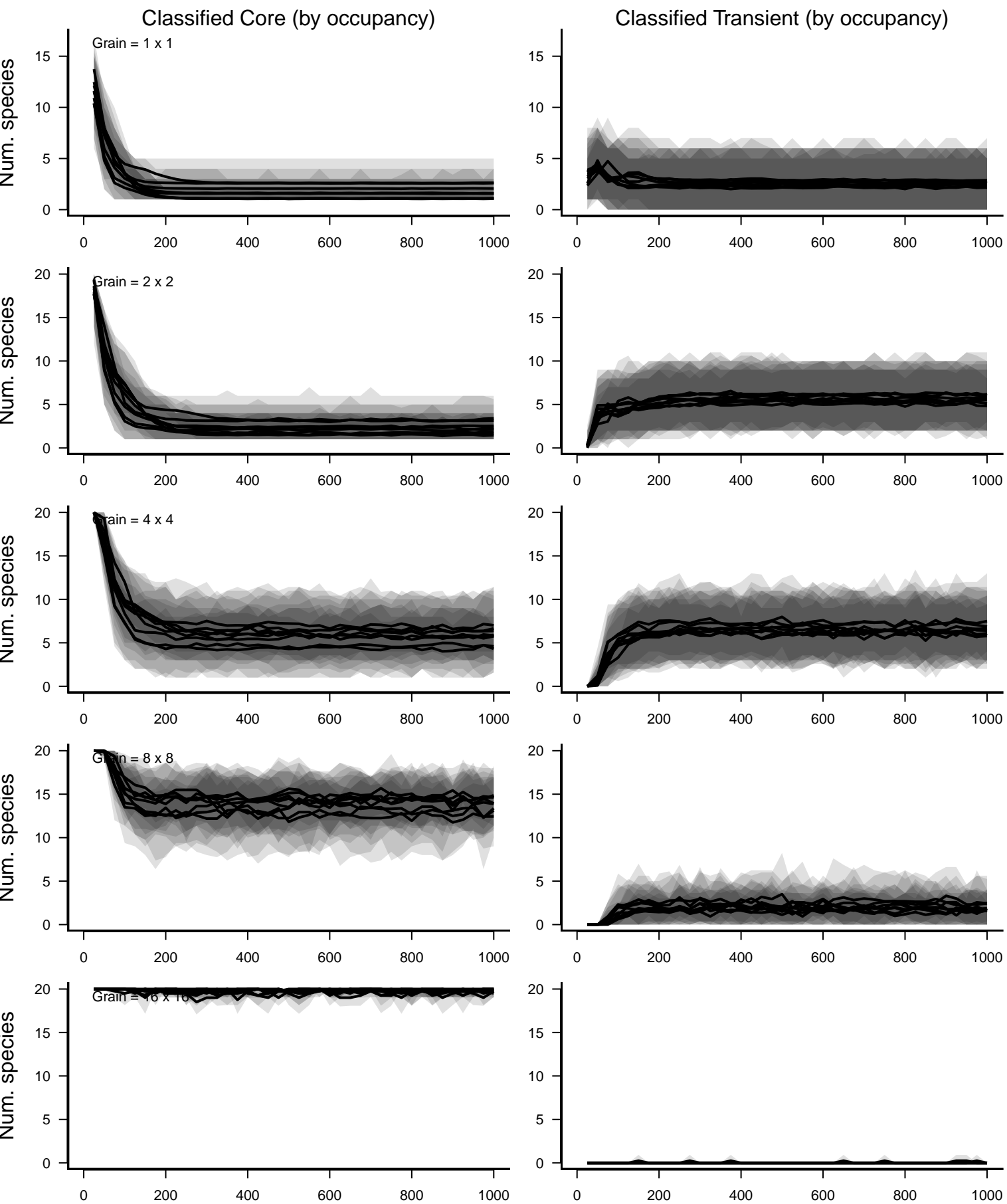
## Transient



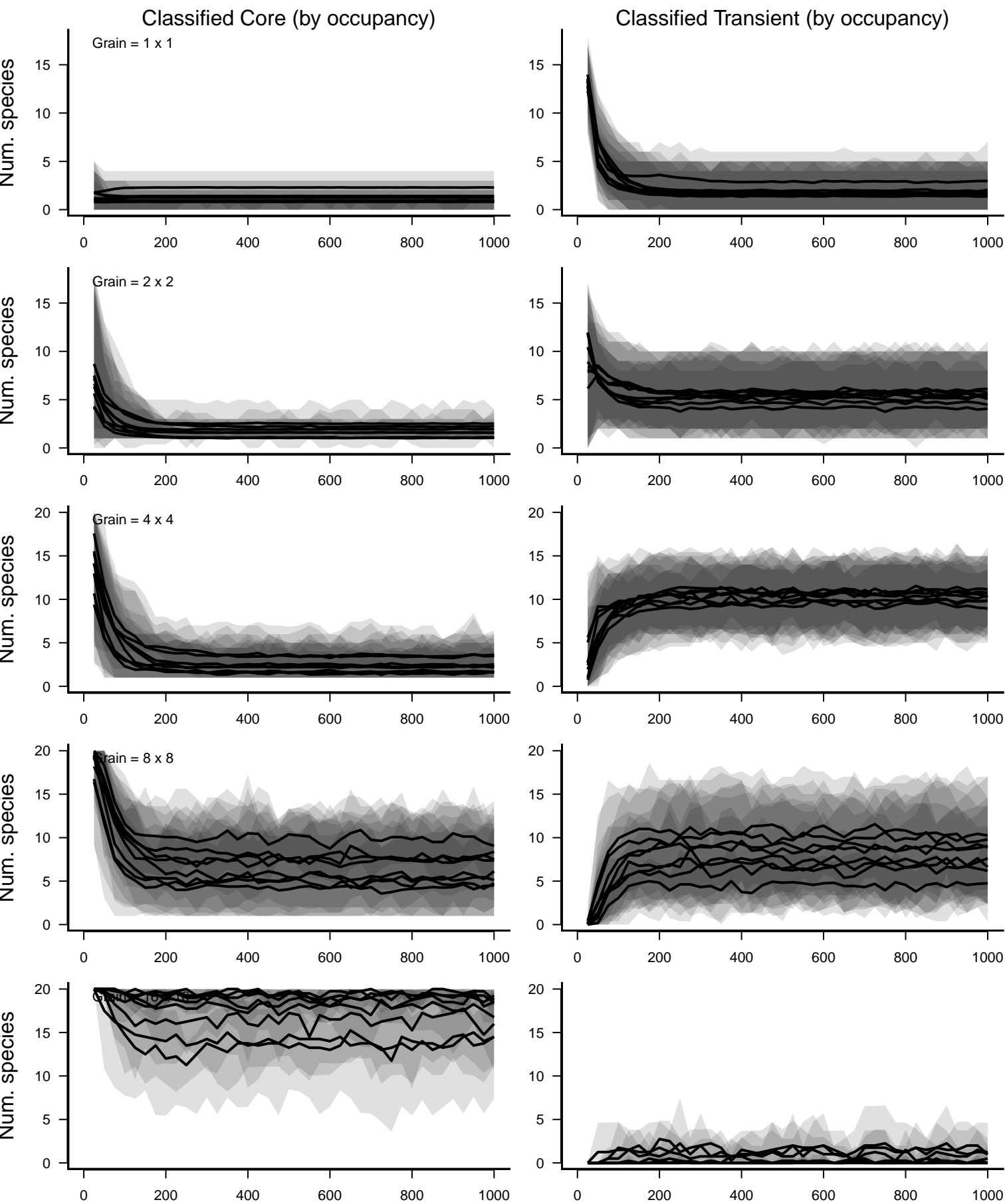
Temporal occupancy-based categories: detection prob. = 0.6



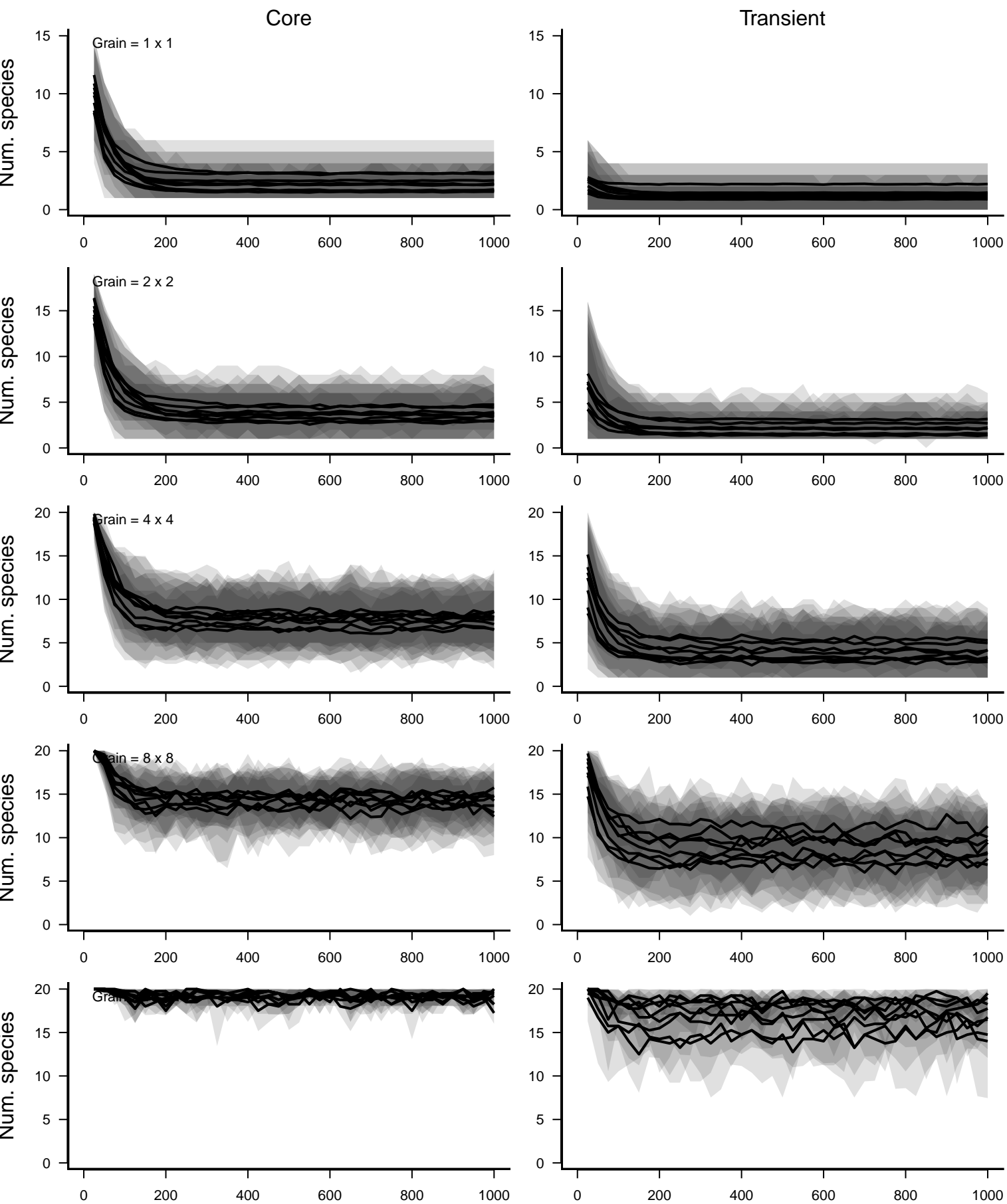
Birth rate–based Core Species: detection prob. = 0.6



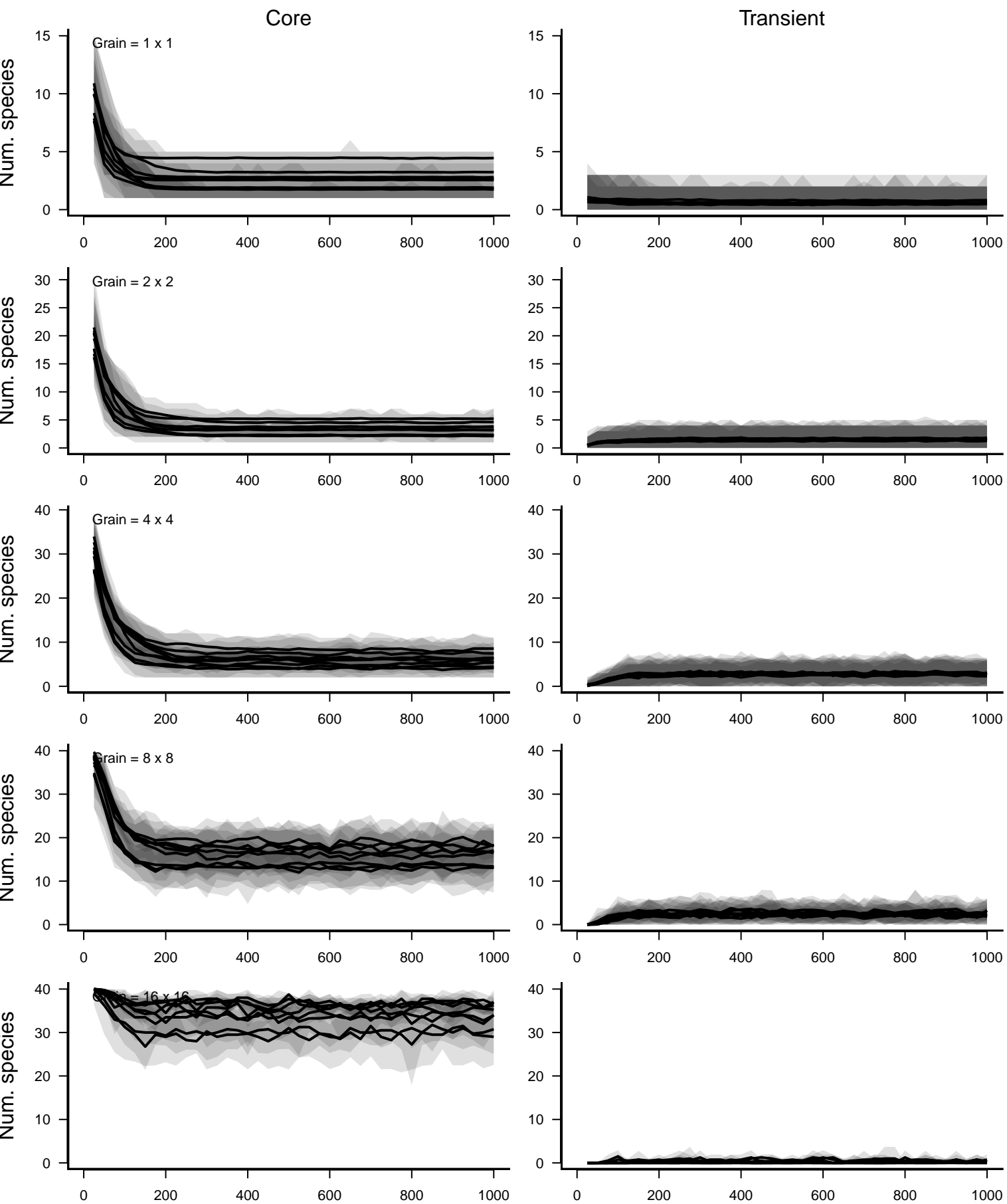
Birth rate–based Transient Species: detection prob. = 0.6



Birth rate–based categories: detection prob. = 0.5

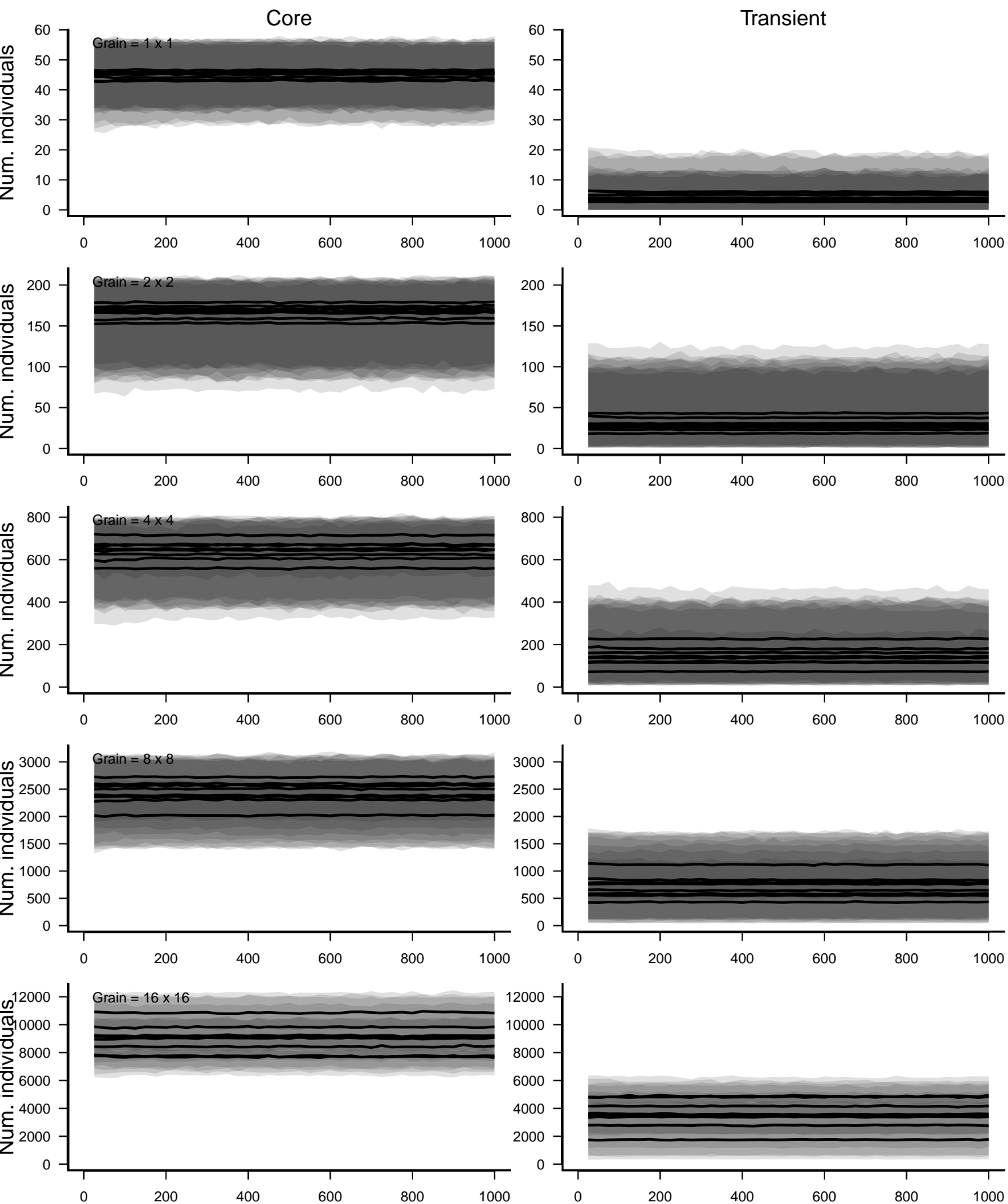


# Temporal occupancy-based categories: detection prob. = 0.5

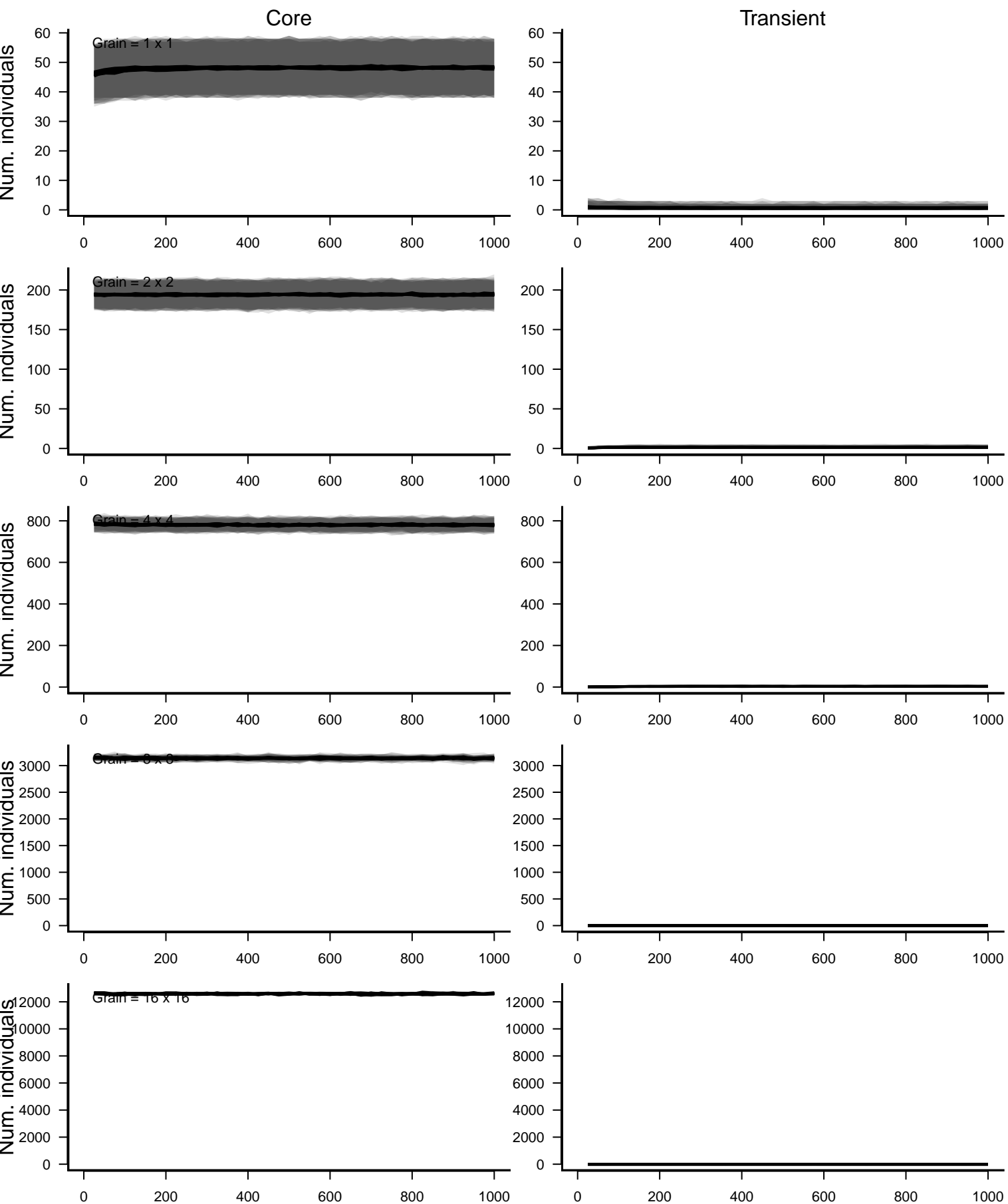




Birth rate–based categories: detection prob. = 0.5

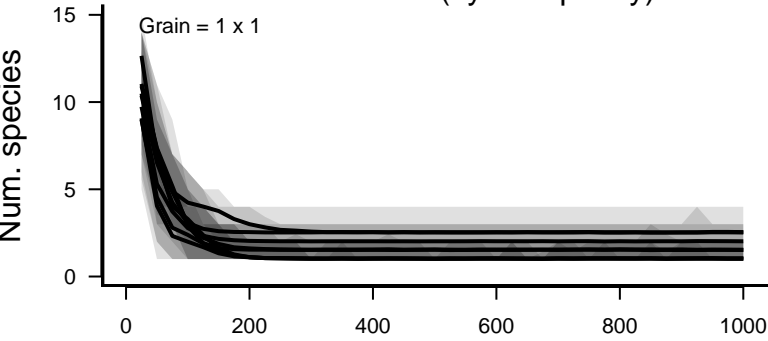


# Temporal occupancy-based categories: detection prob. = 0.5

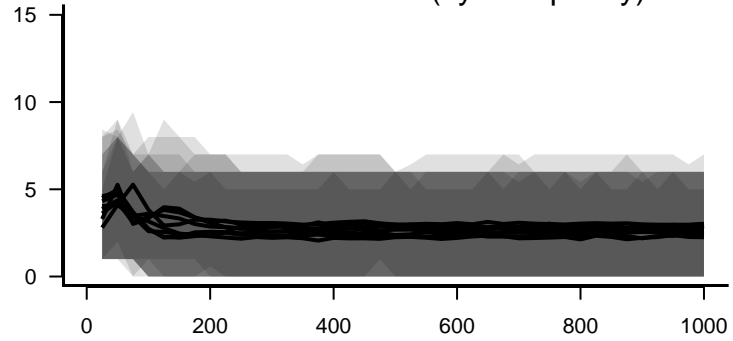


Birth rate–based Core Species: detection prob. = 0.5

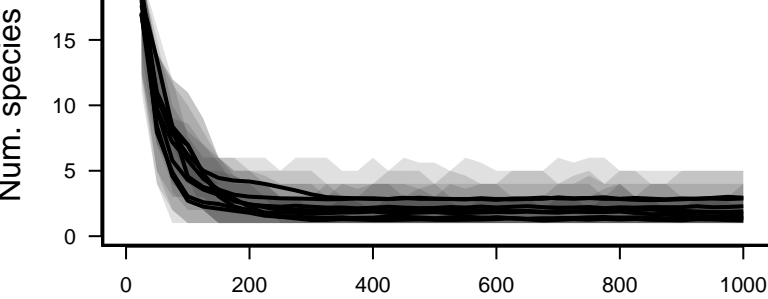
### Classified Core (by occupancy)



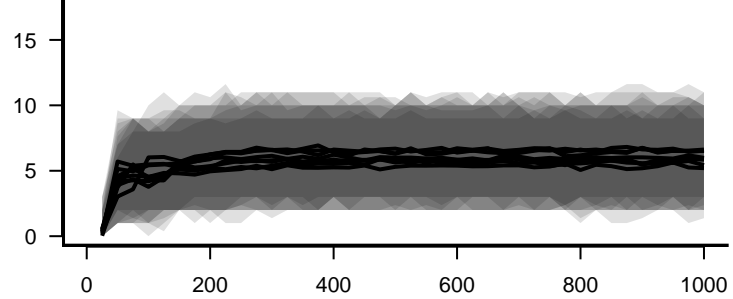
### Classified Transient (by occupancy)



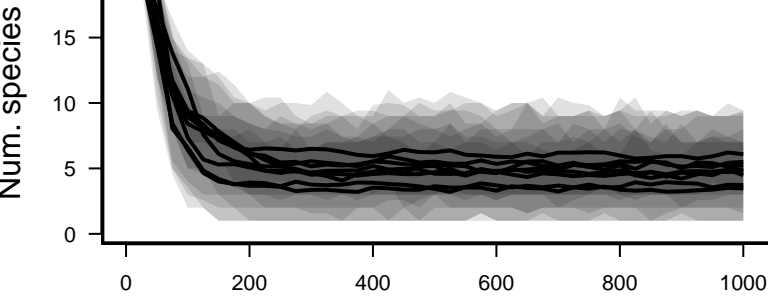
20 | Grain = 2 x 2



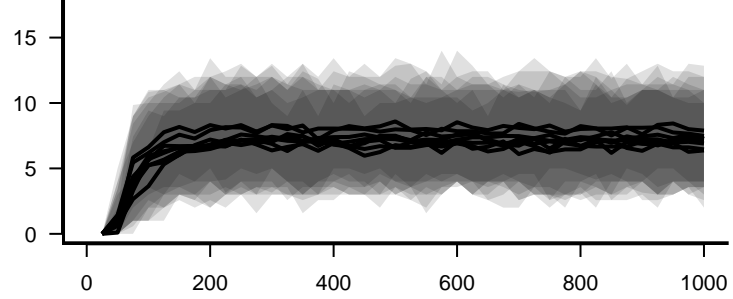
20



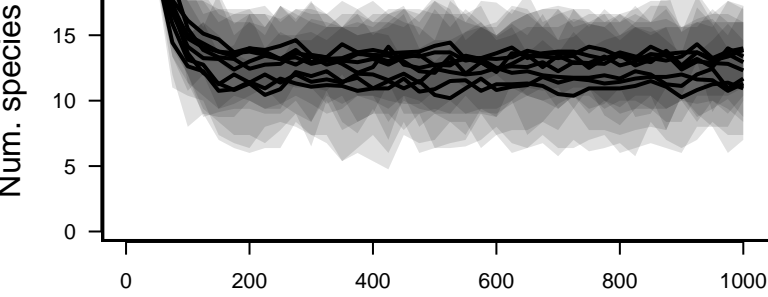
20 | Grain = 4 x 4



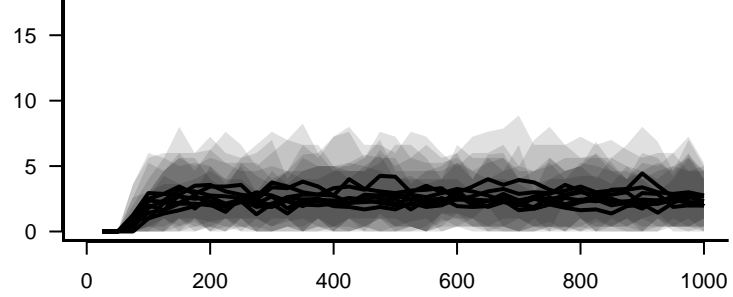
20 —



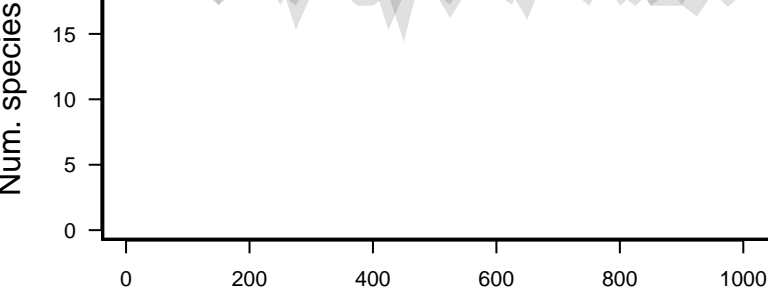
20 — Grain = 8 x 8



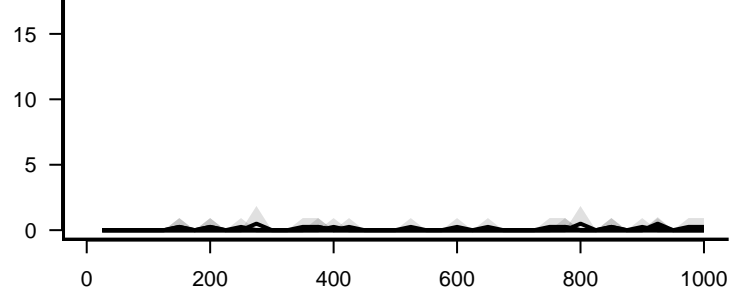
20 —



20 — Grain — 10 x

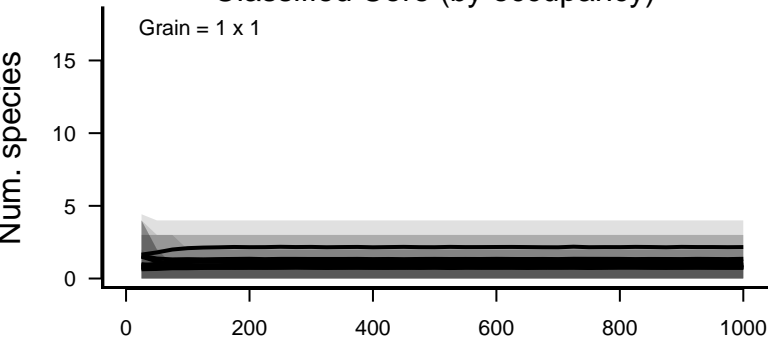


20 —

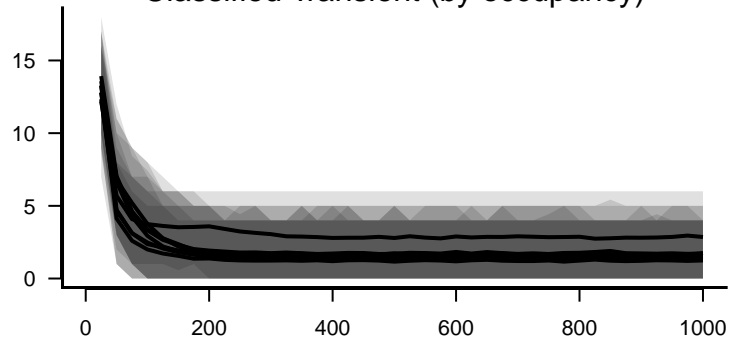


Birth rate–based Transient Species: detection prob. = 0.5

### Classified Core (by occupancy)



### Classified Transient (by occupancy)



Grain = 2 x 2

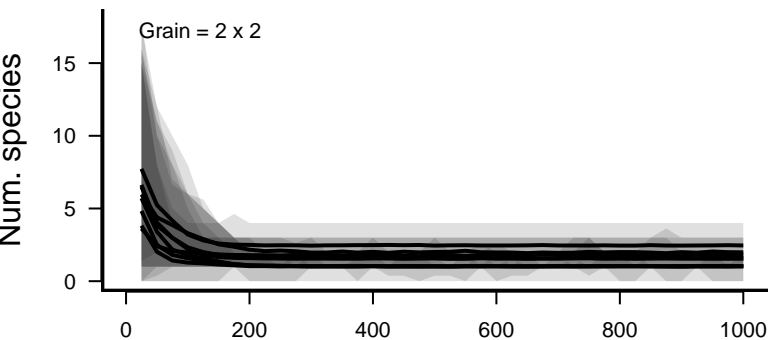
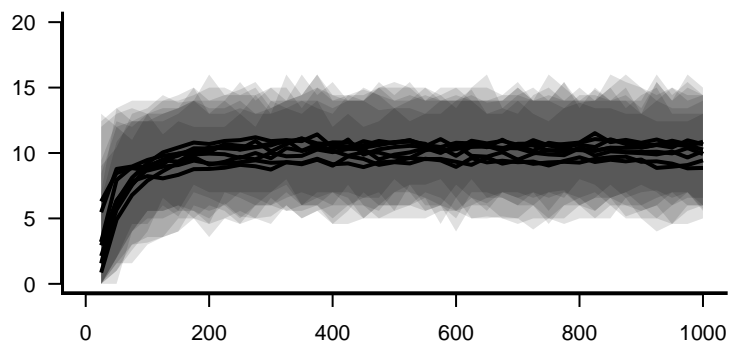
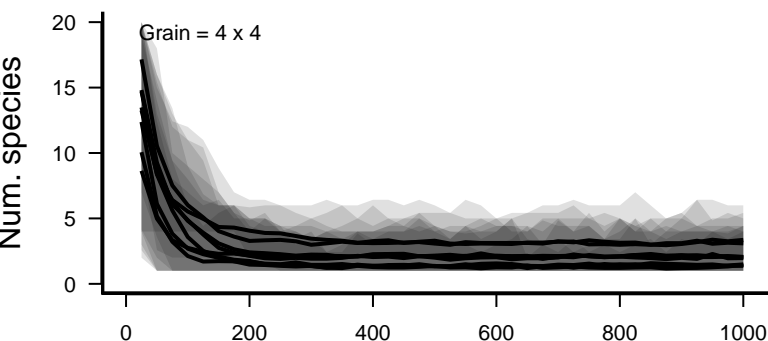
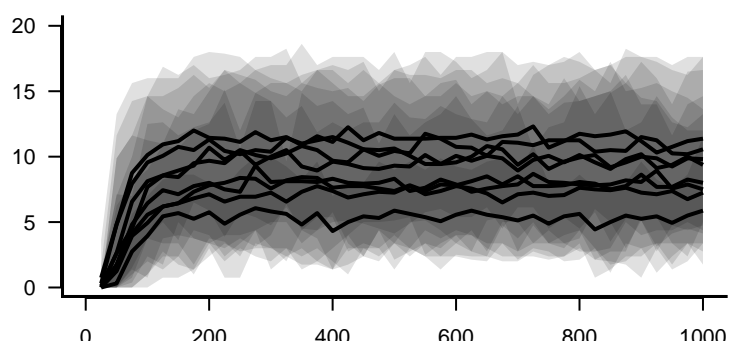
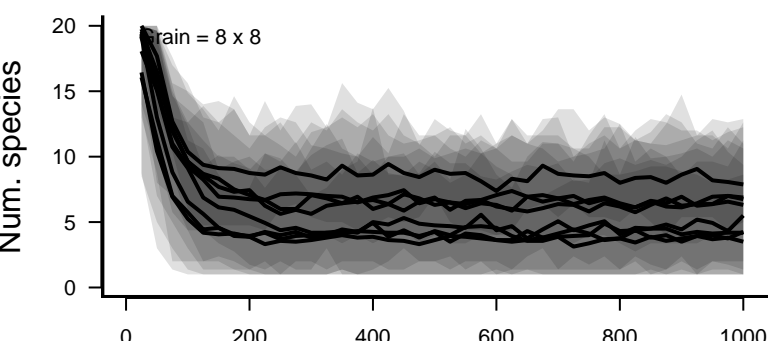


Figure 1 is a line plot showing the evolution of the mean and standard deviation of the estimated parameters over 1000 iterations. The x-axis represents iterations from 0 to 1000, and the y-axis represents parameter values from 0 to 15. Multiple lines represent different parameters, showing a rapid initial decrease followed by stabilization. Shaded regions around the lines indicate the standard deviation.

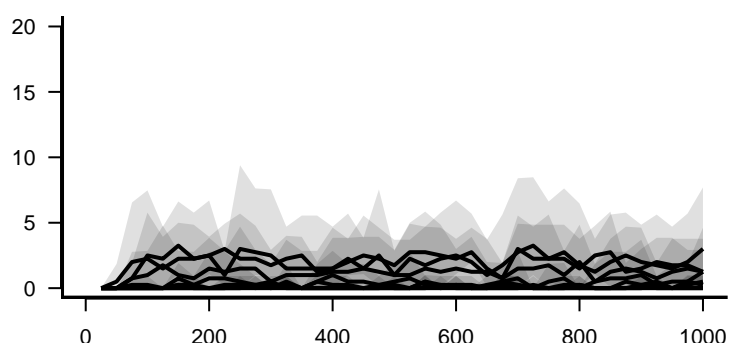
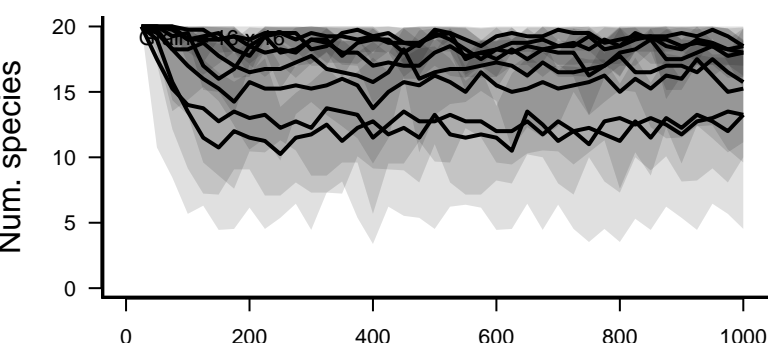
Grain = 4 x 4



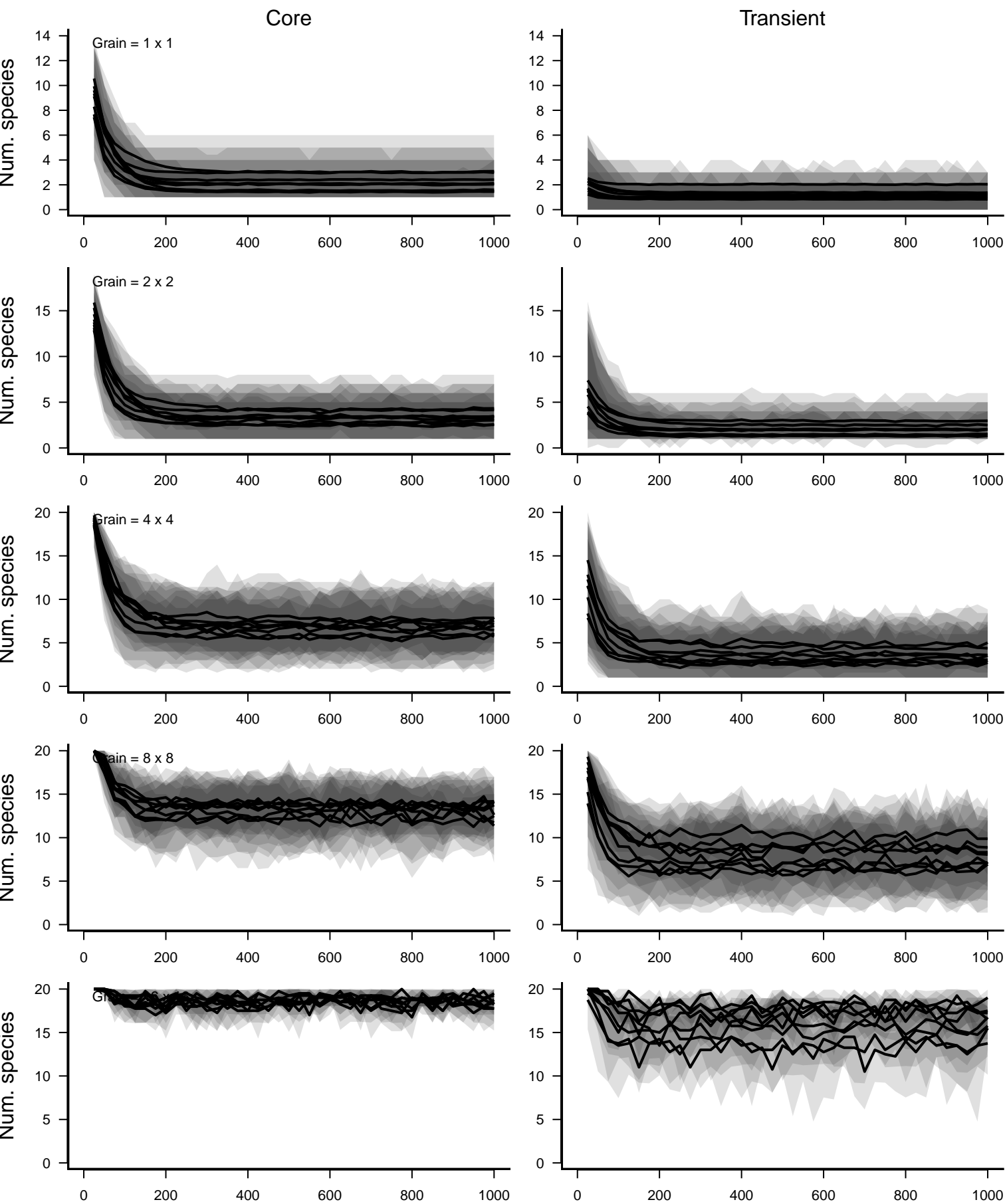
Grain = 8 x 8



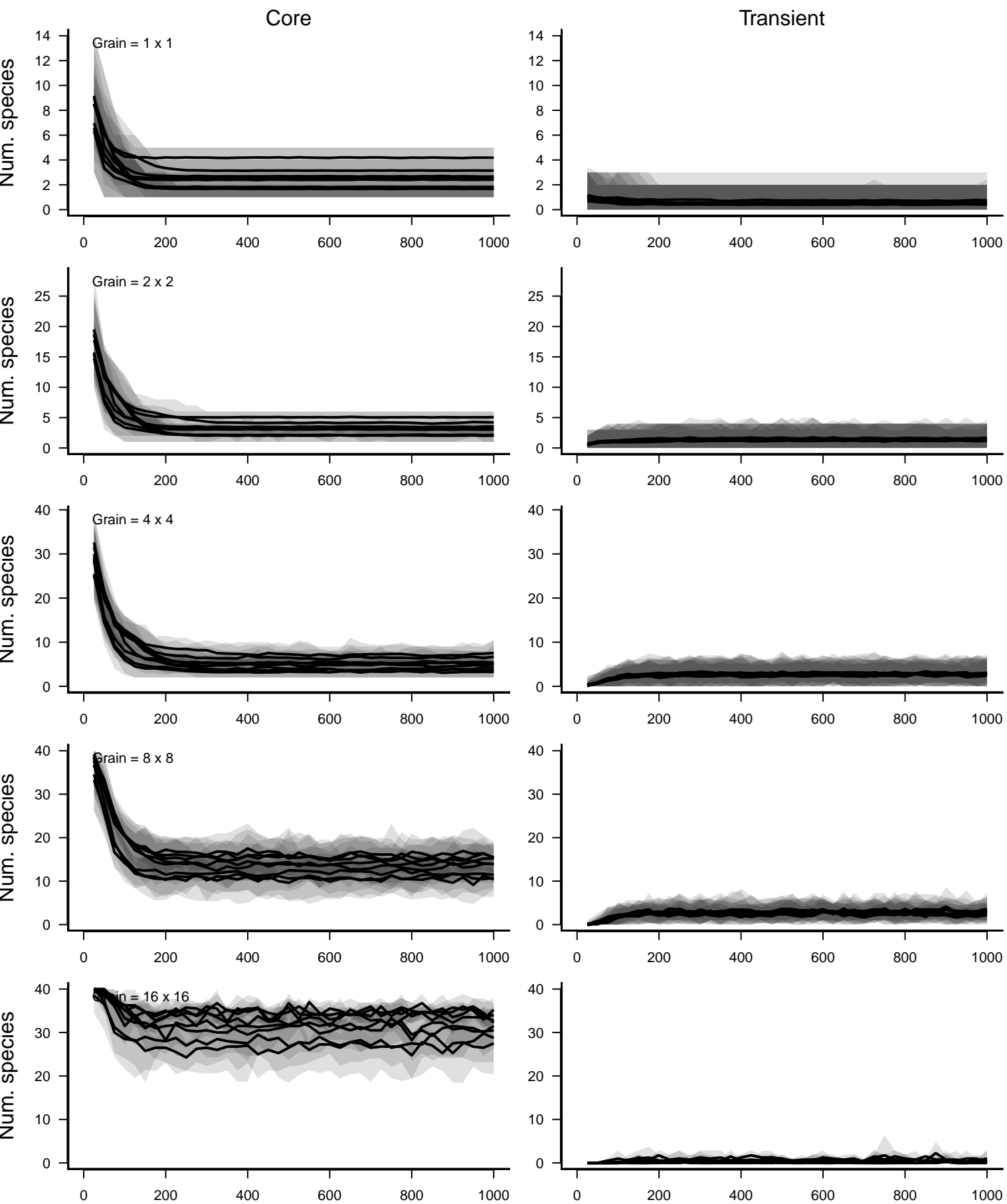
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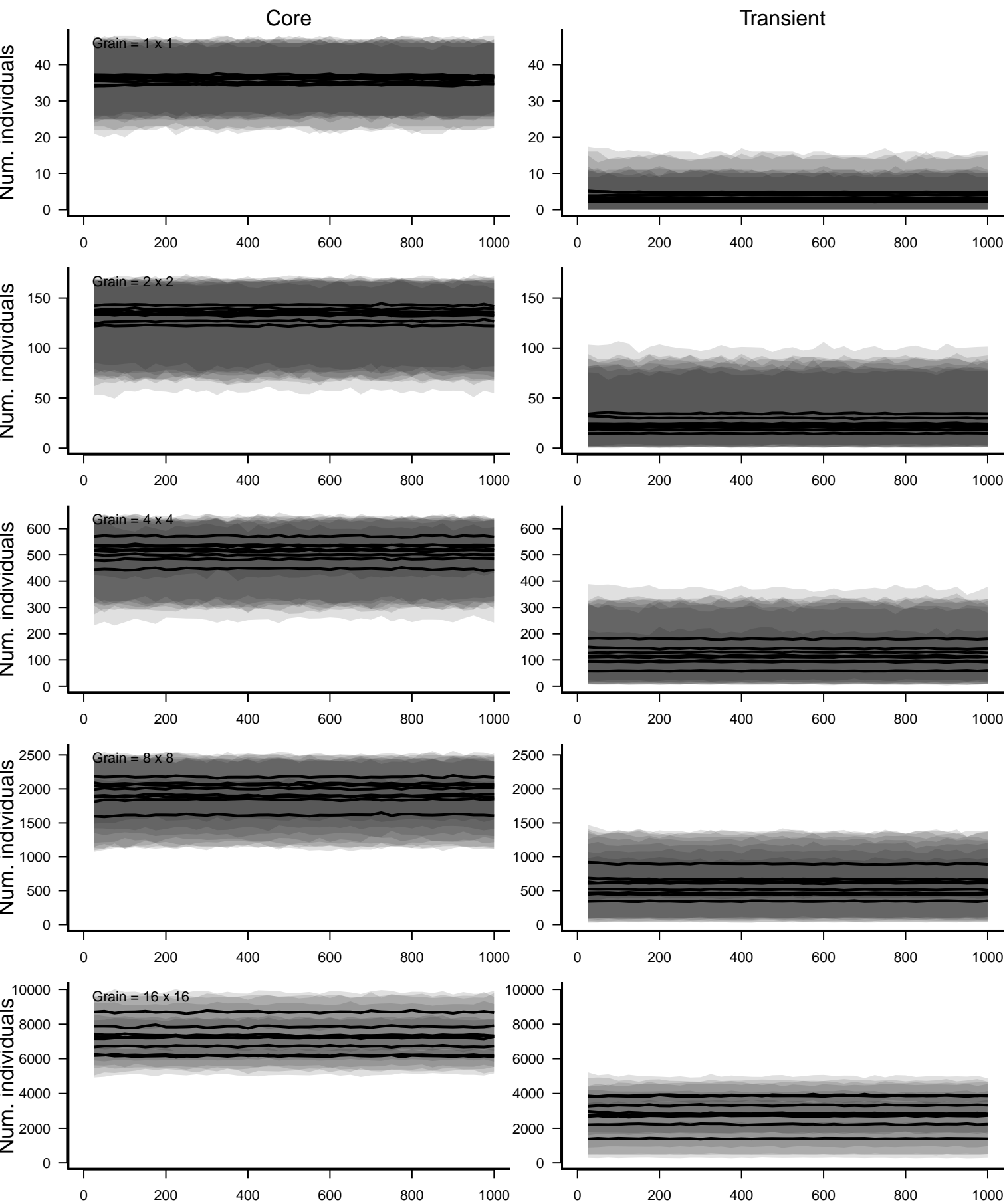
Birth rate–based categories: detection prob. = 0.4



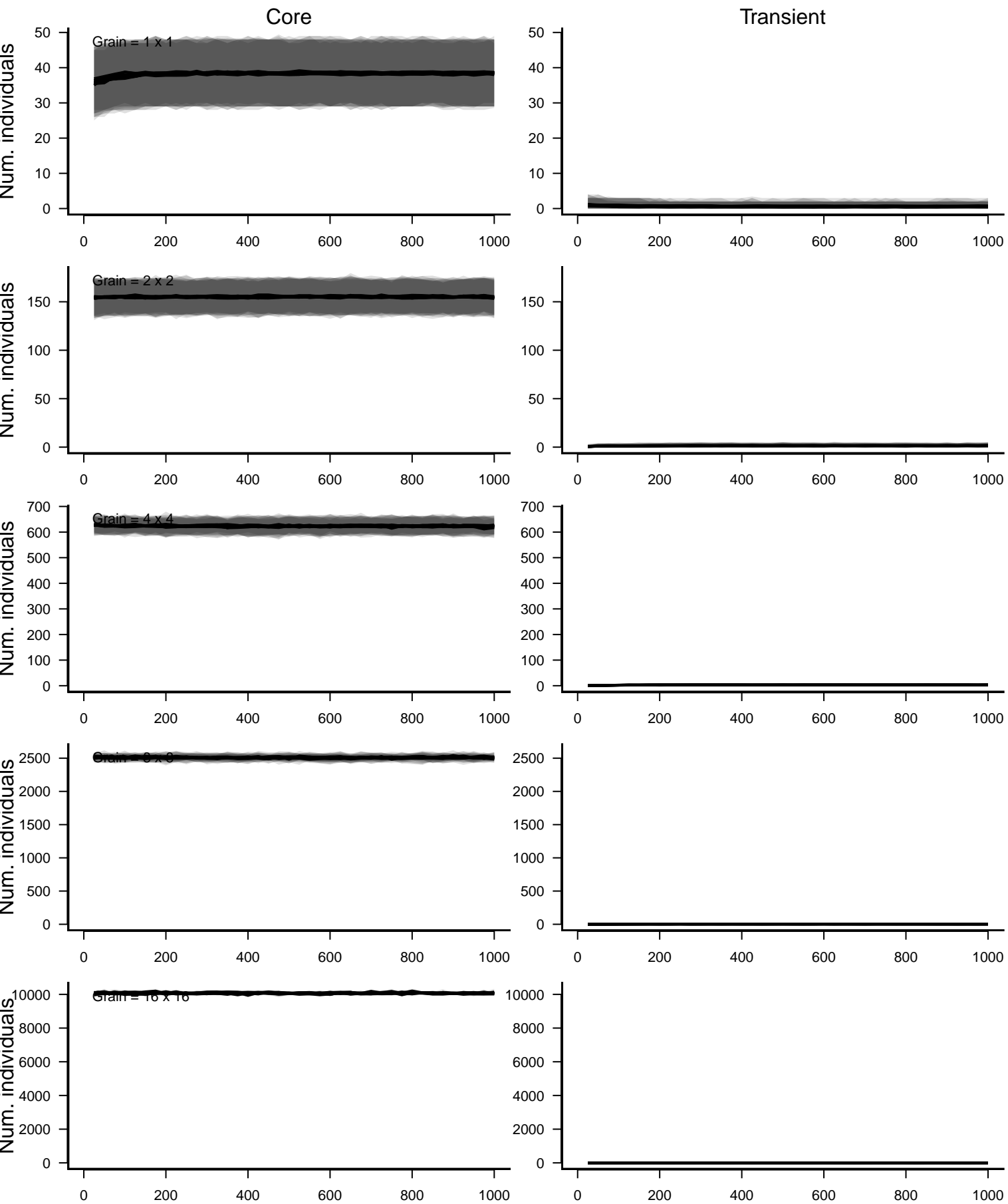
Temporal occupancy-based categories: detection prob. = 0.4



Birth rate–based categories: detection prob. = 0.4

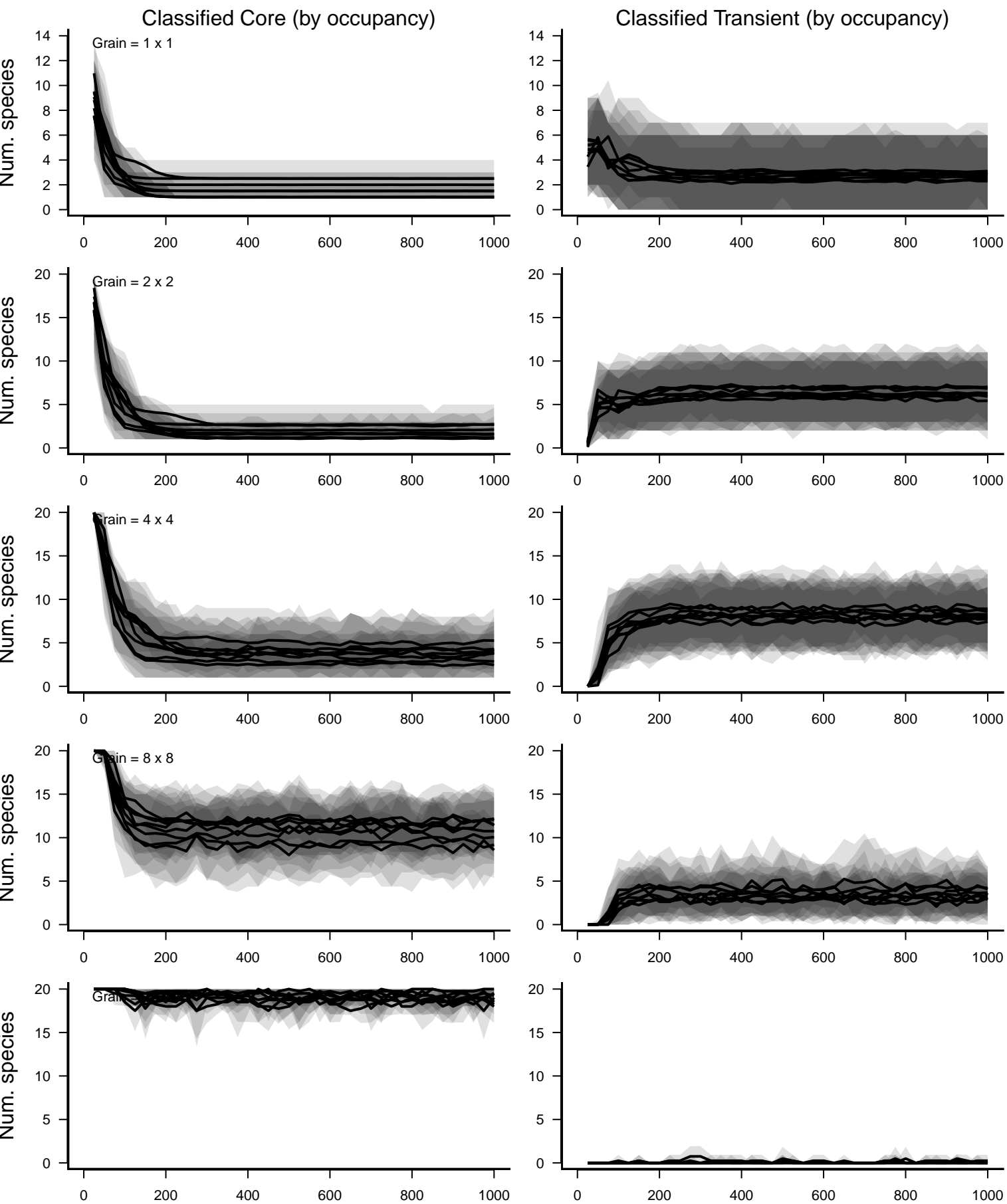


Temporal occupancy-based categories: detection prob. = 0.4

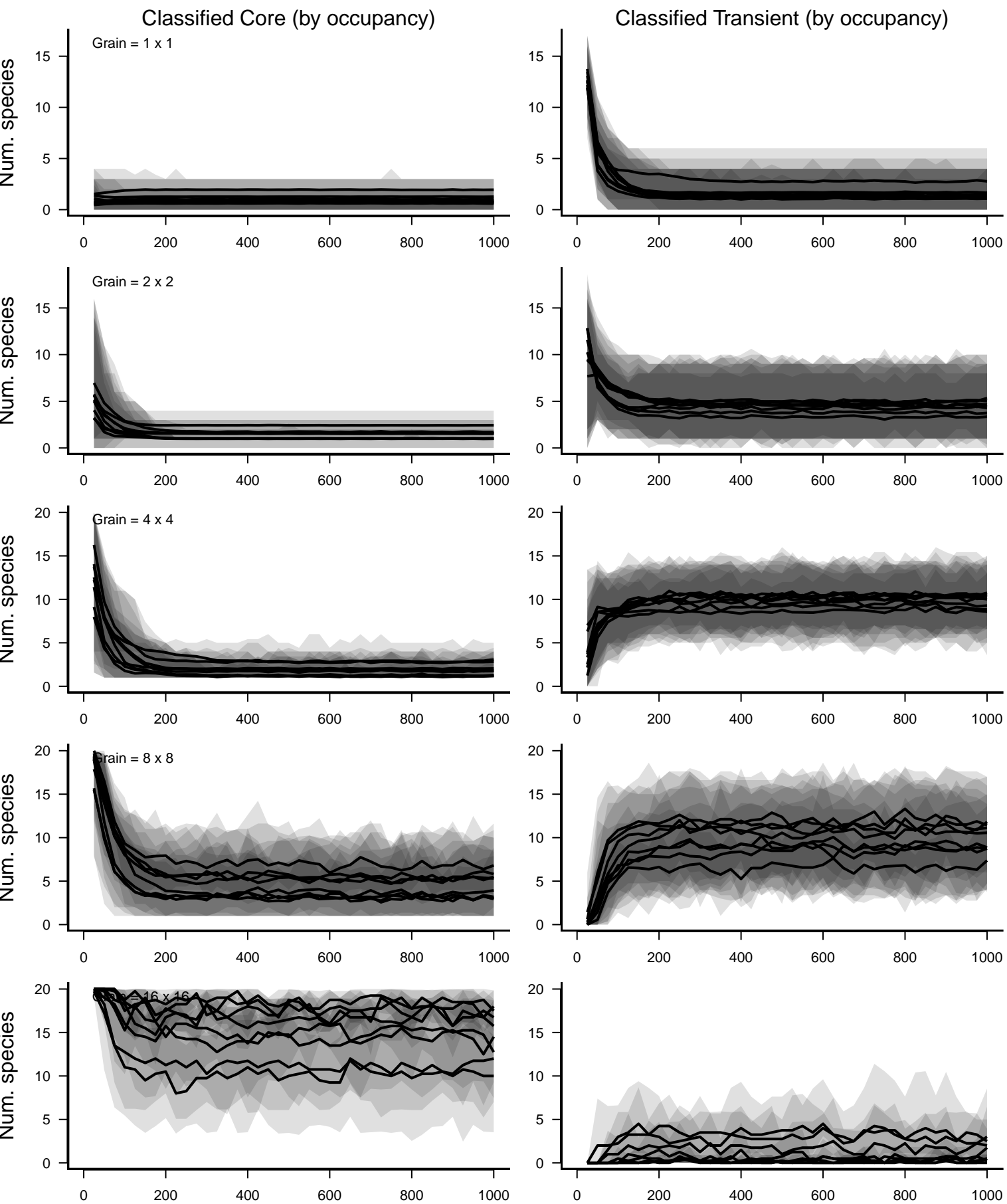




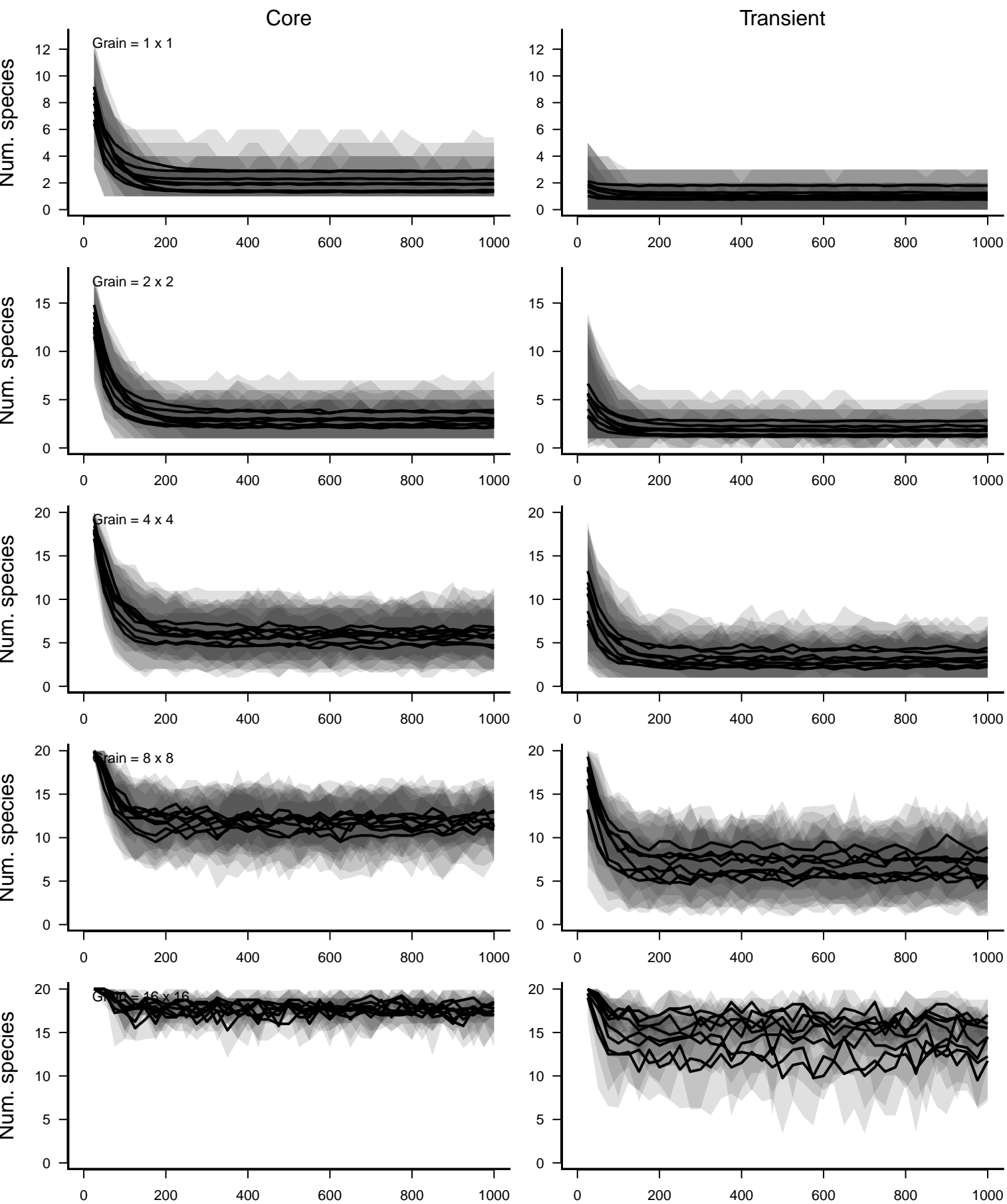
Birth rate–based Core Species: detection prob. = 0.4



Birth rate–based Transient Species: detection prob. = 0.4



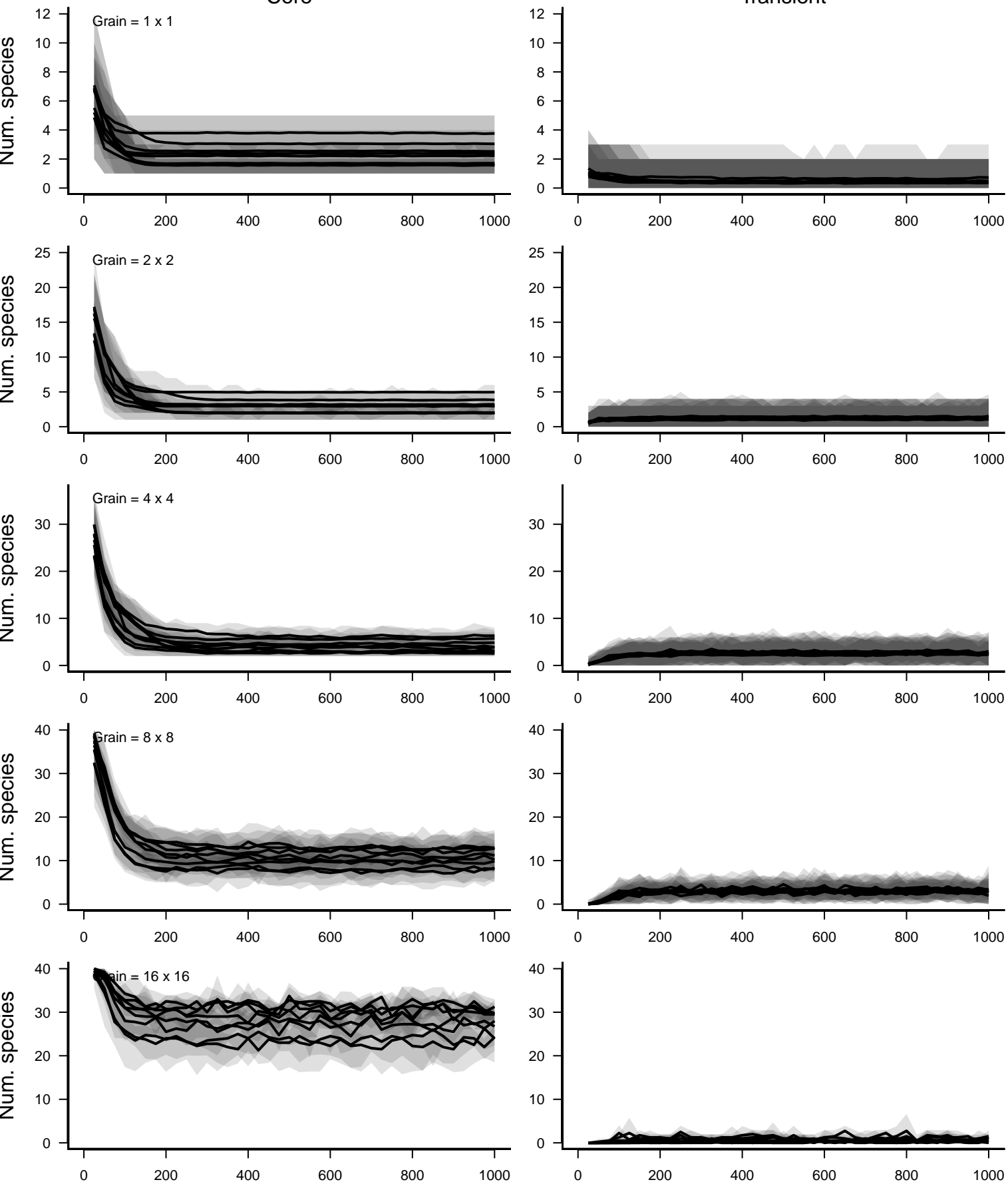
Birth rate–based categories: detection prob. = 0.3



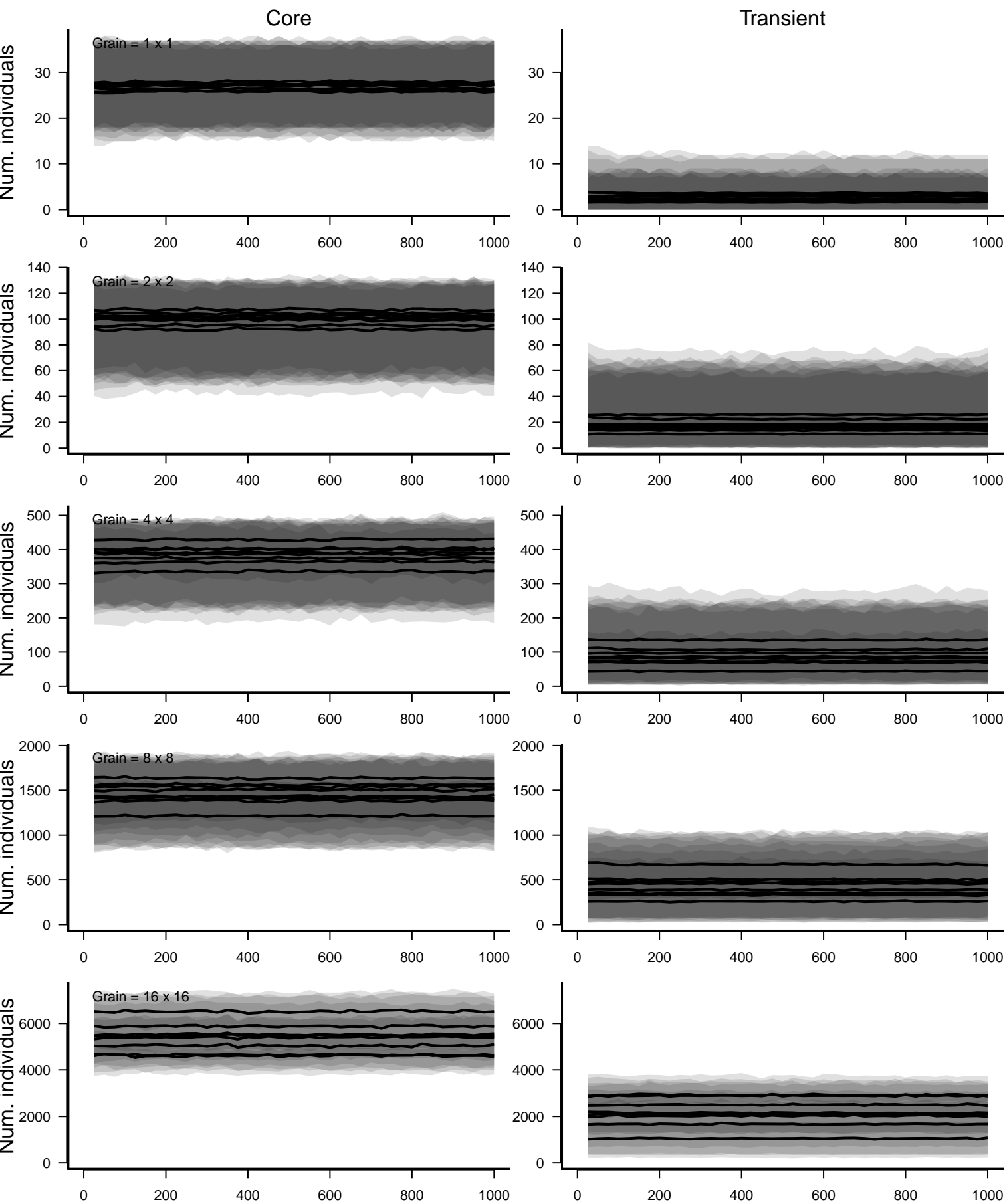
Temporal occupancy-based categories: detection prob. = 0.3

## Core

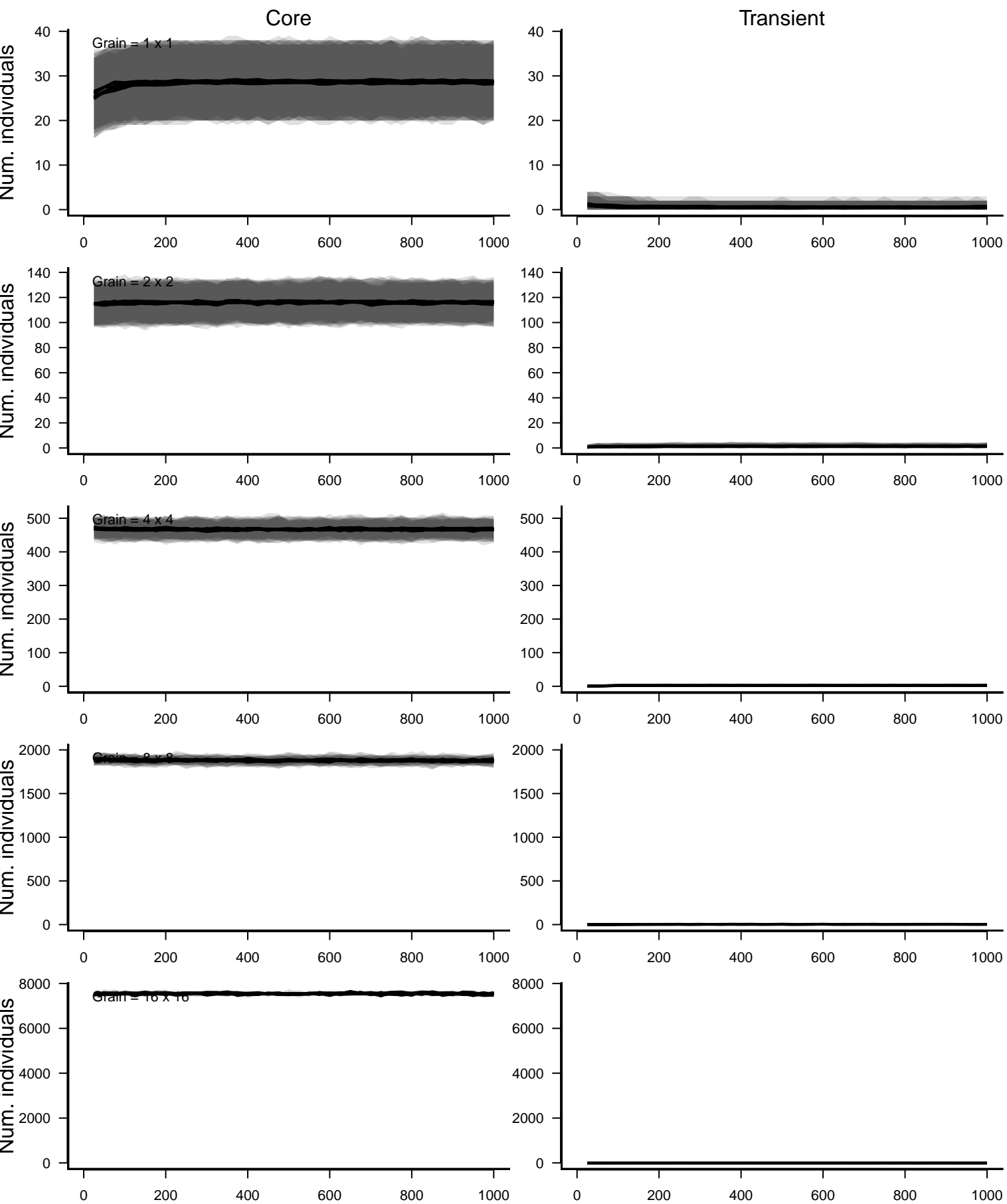
## Transient



Birth rate–based categories: detection prob. = 0.3

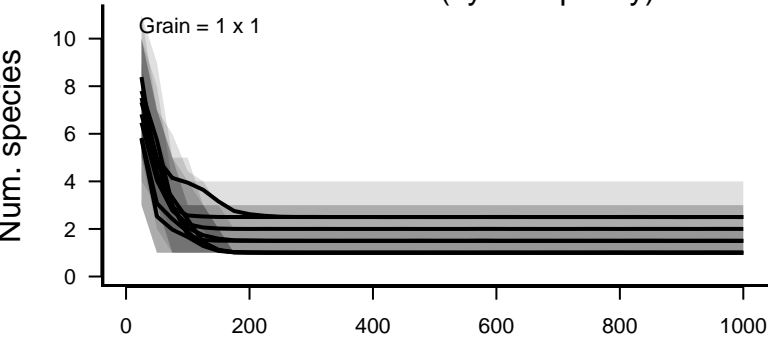


Temporal occupancy-based categories: detection prob. = 0.3

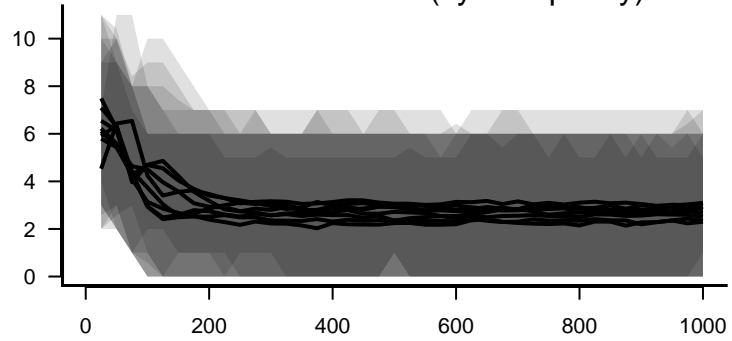


Birth rate–based Core Species: detection prob. = 0.3

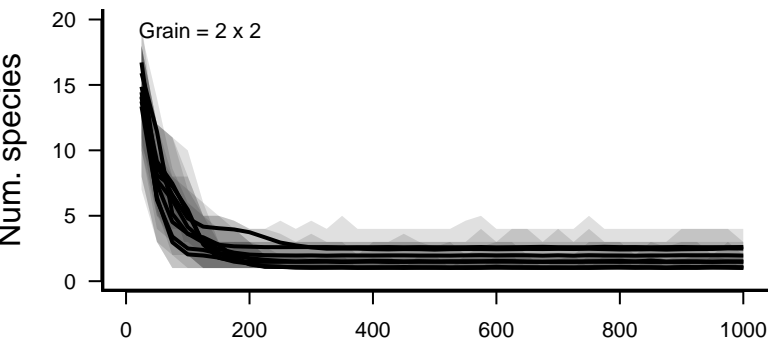
### Classified Core (by occupancy)



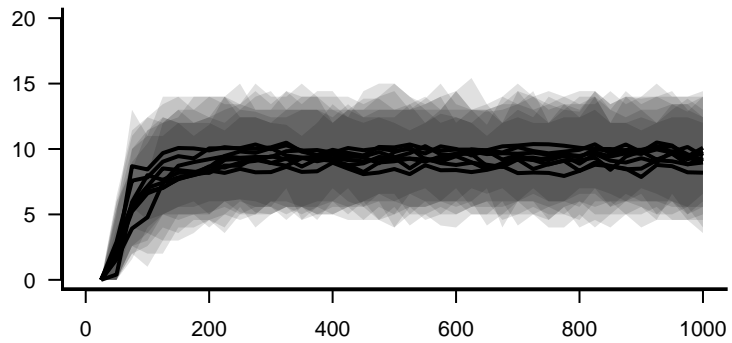
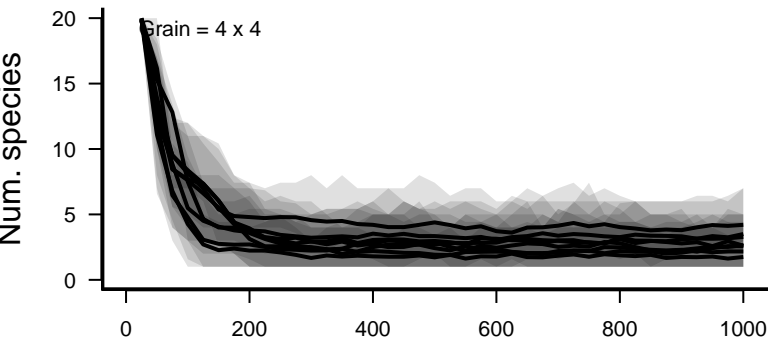
### Classified Transient (by occupancy)



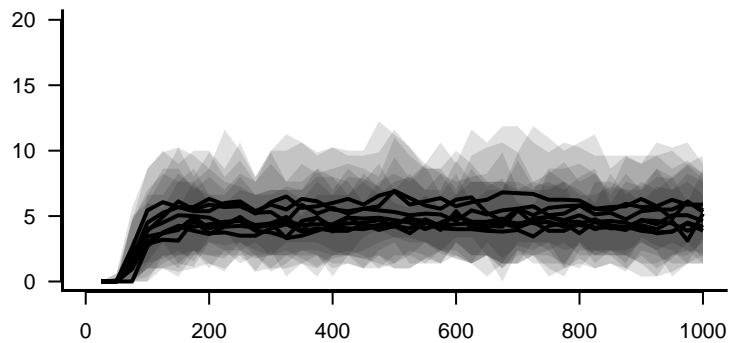
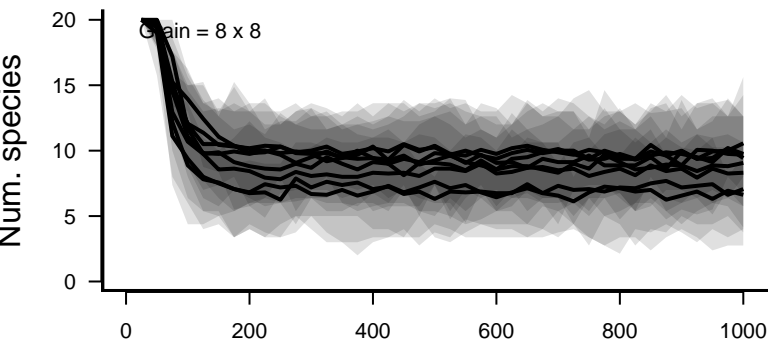
Grain = 2 x 2



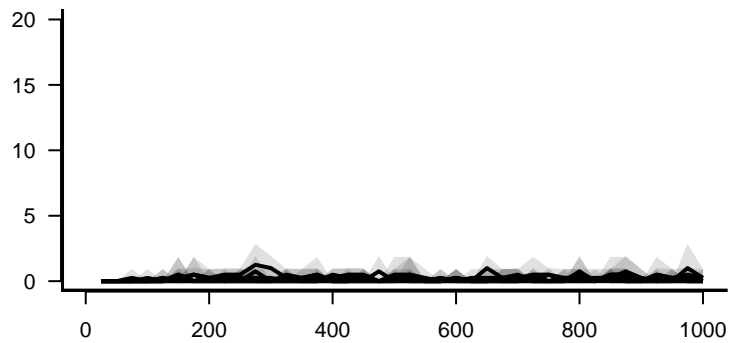
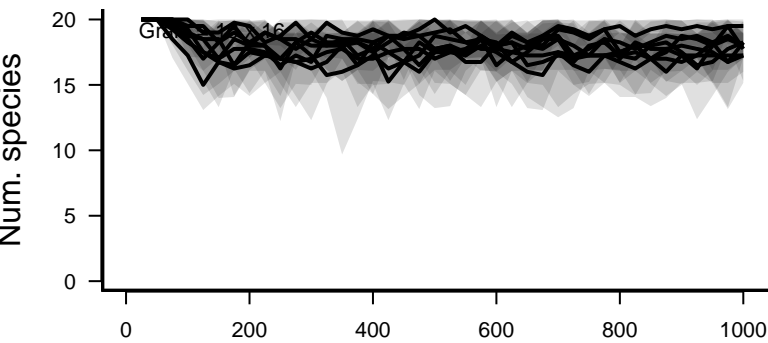
Grain = 4 x 4



Gain =  $8 \times 8$

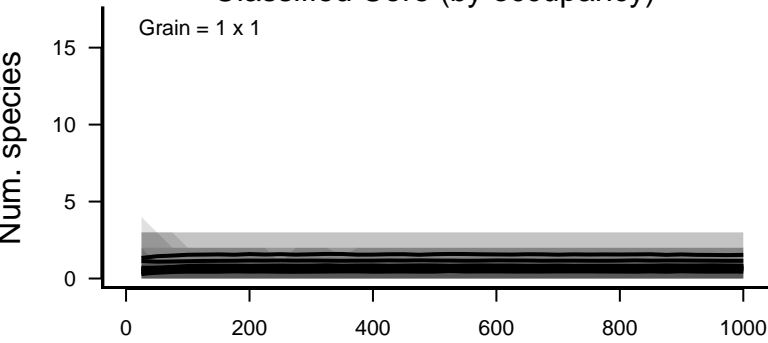


Gran

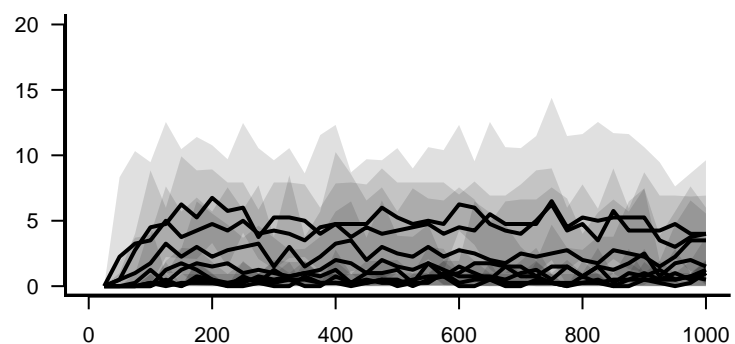
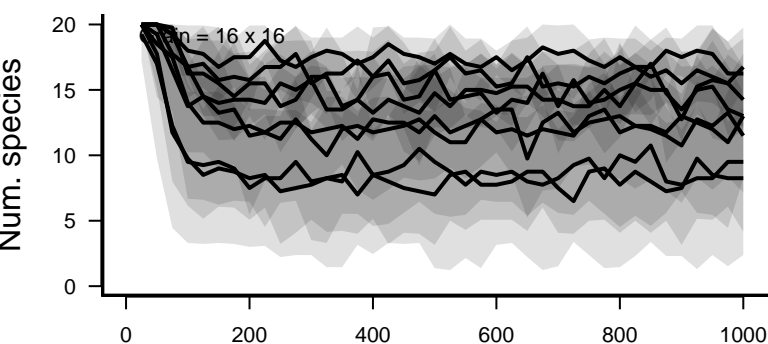
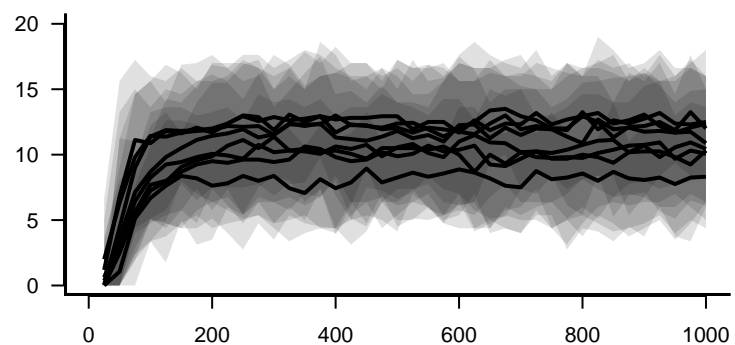
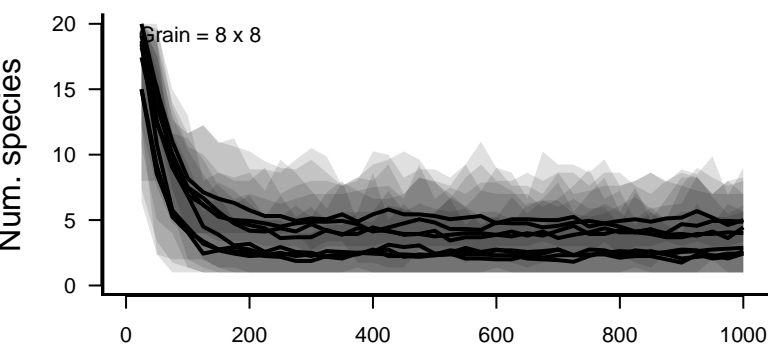
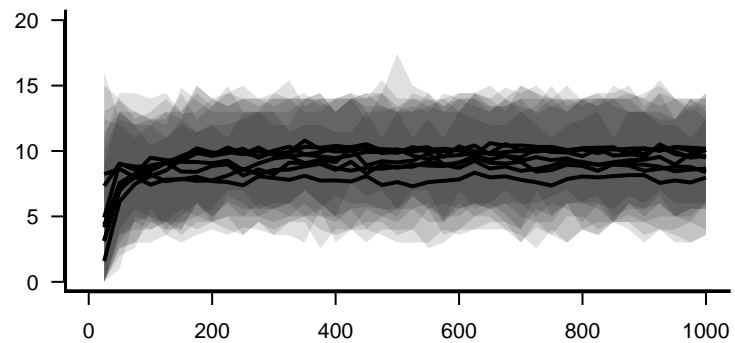
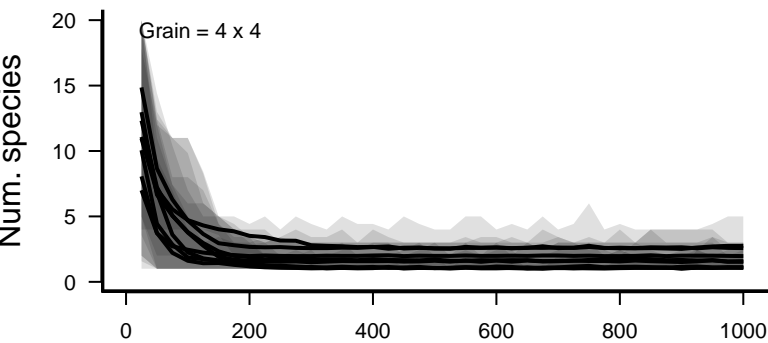
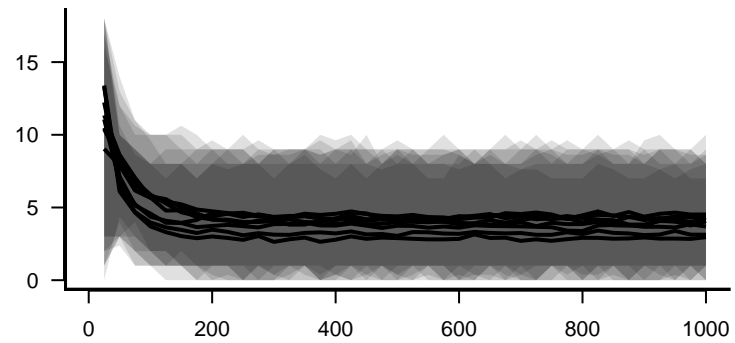
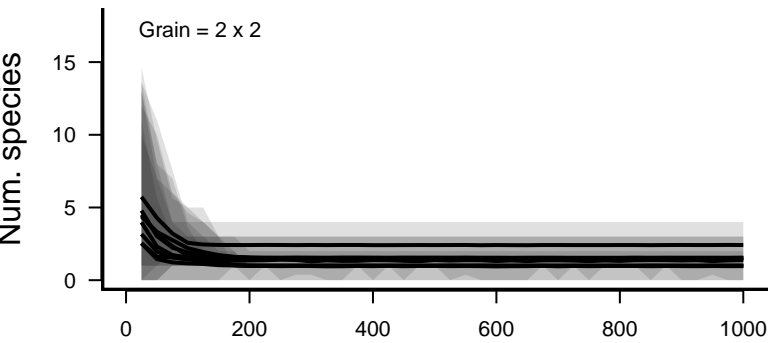
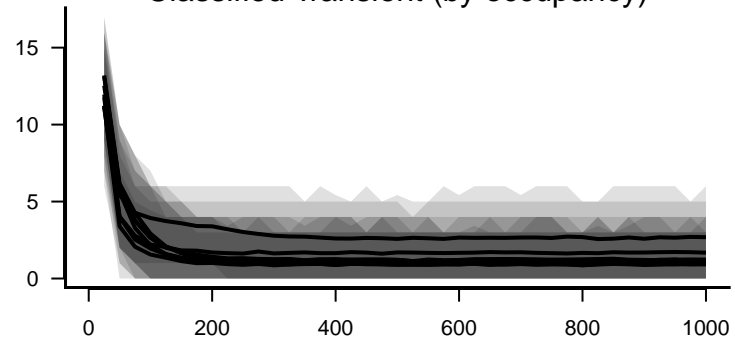


Birth rate–based Transient Species: detection prob. = 0.3

Classified Core (by occupancy)

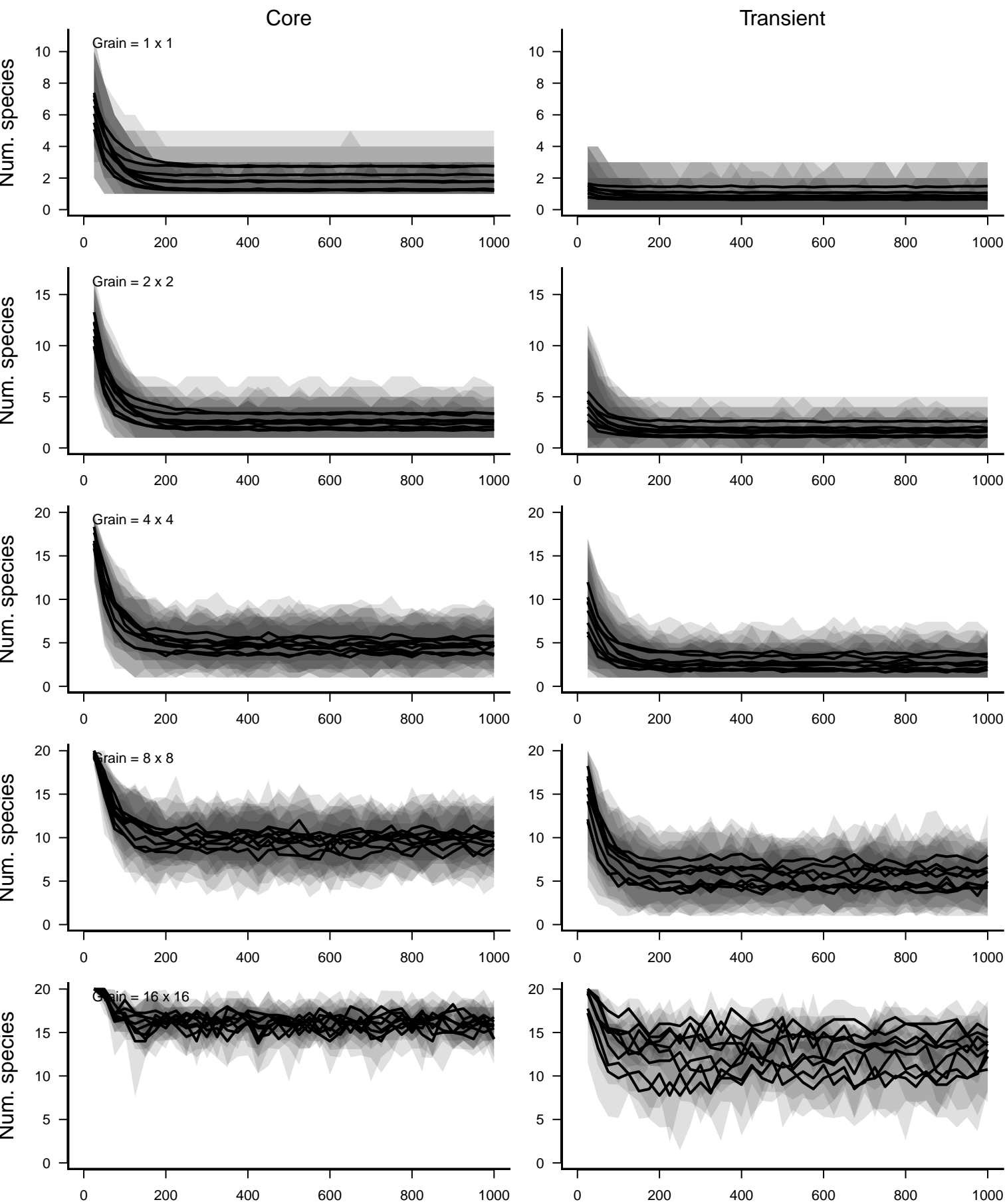


Classified Transient (by occupancy)

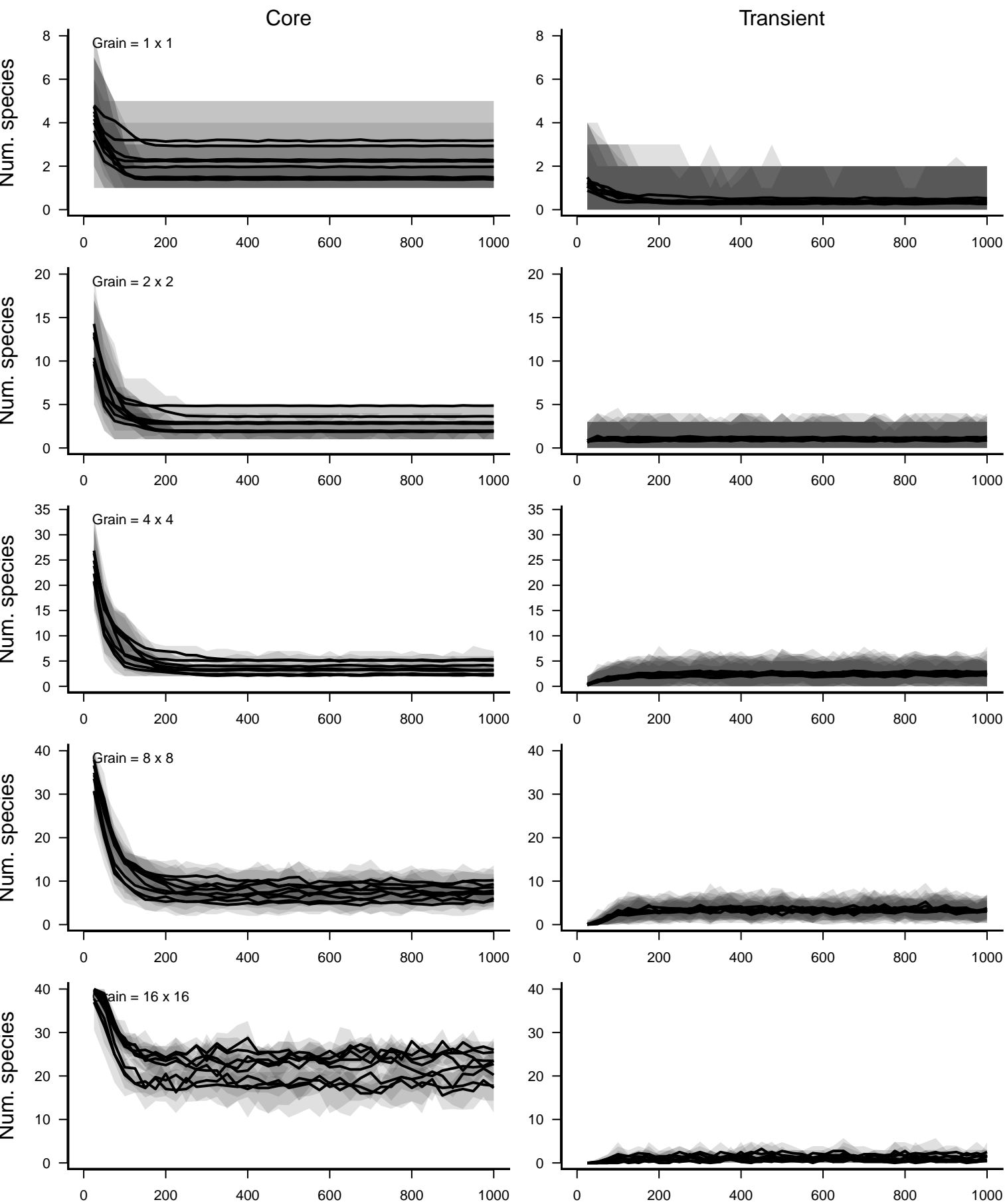




Birth rate-based categories: detection prob. = 0.2



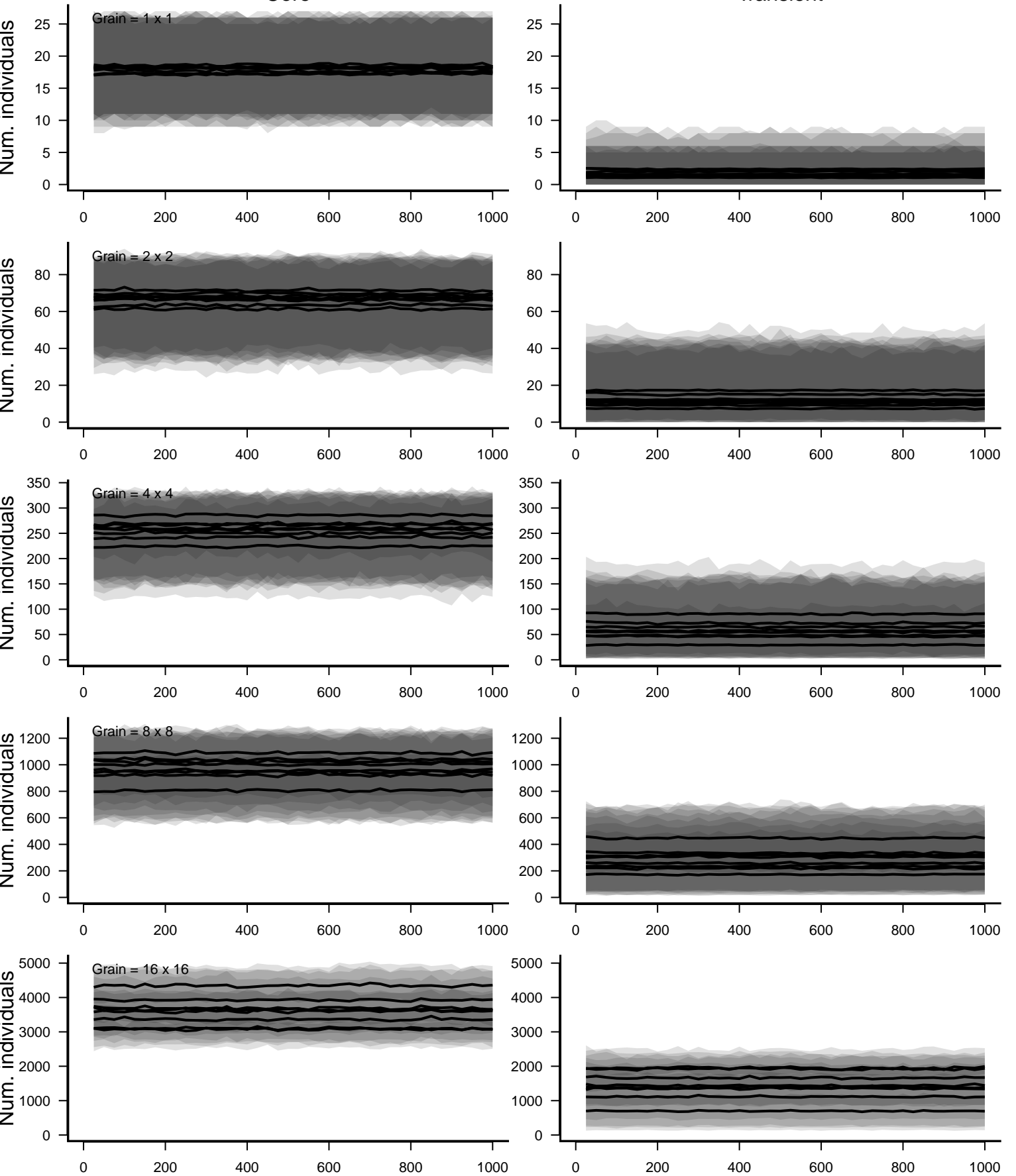
Temporal occupancy-based categories: detection prob. = 0.2



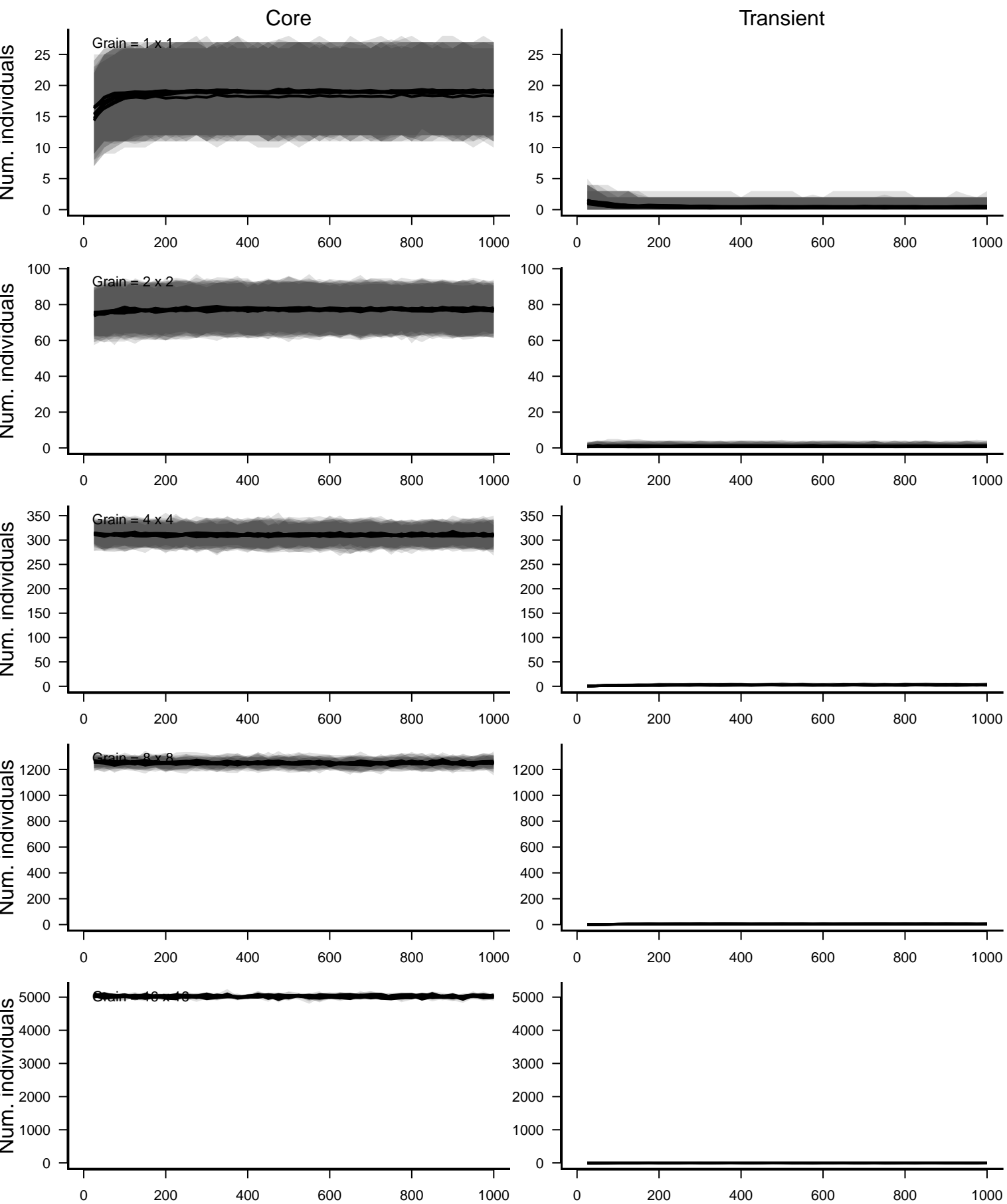
Birth rate–based categories: detection prob. = 0.2

## Core

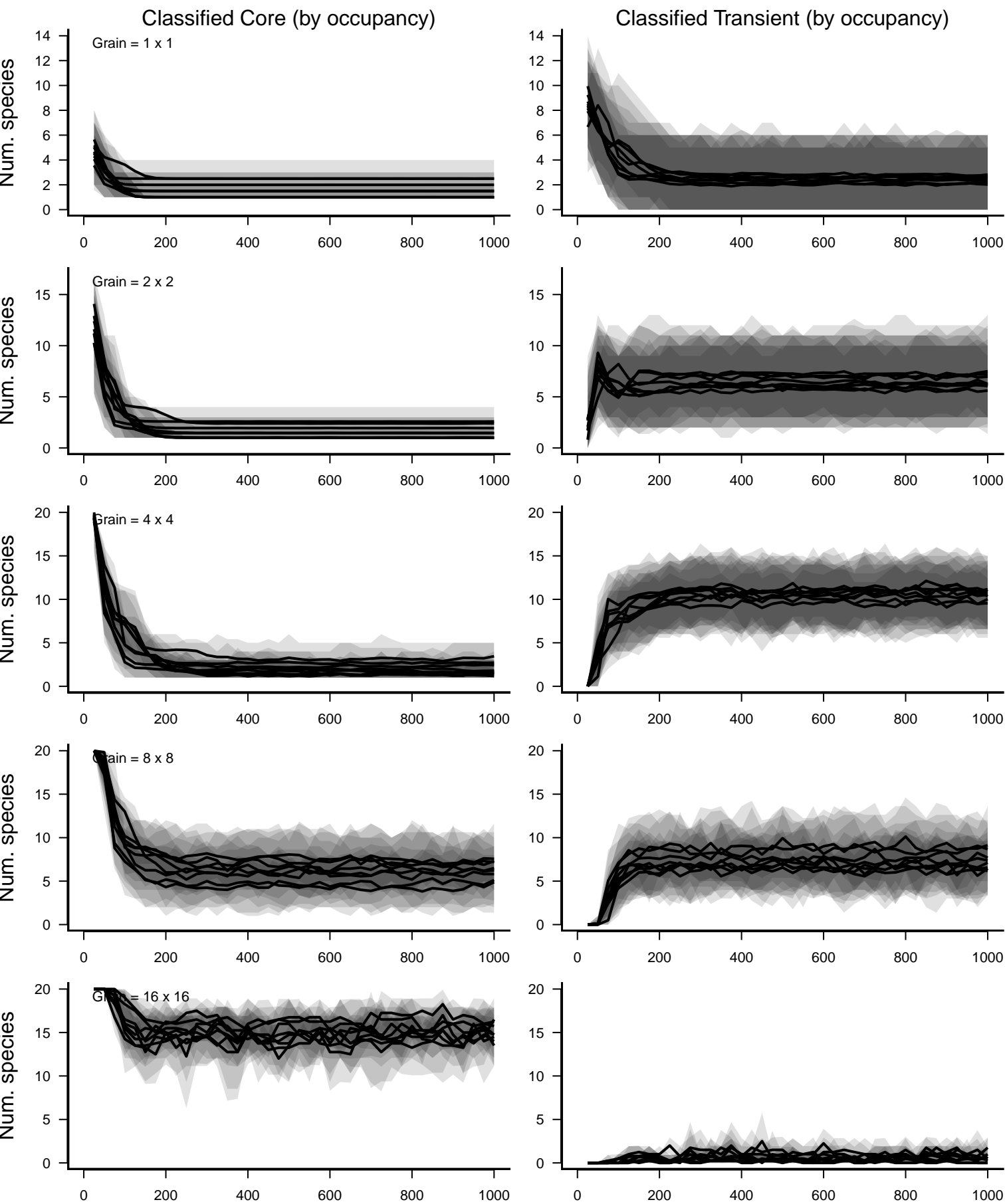
## Transient



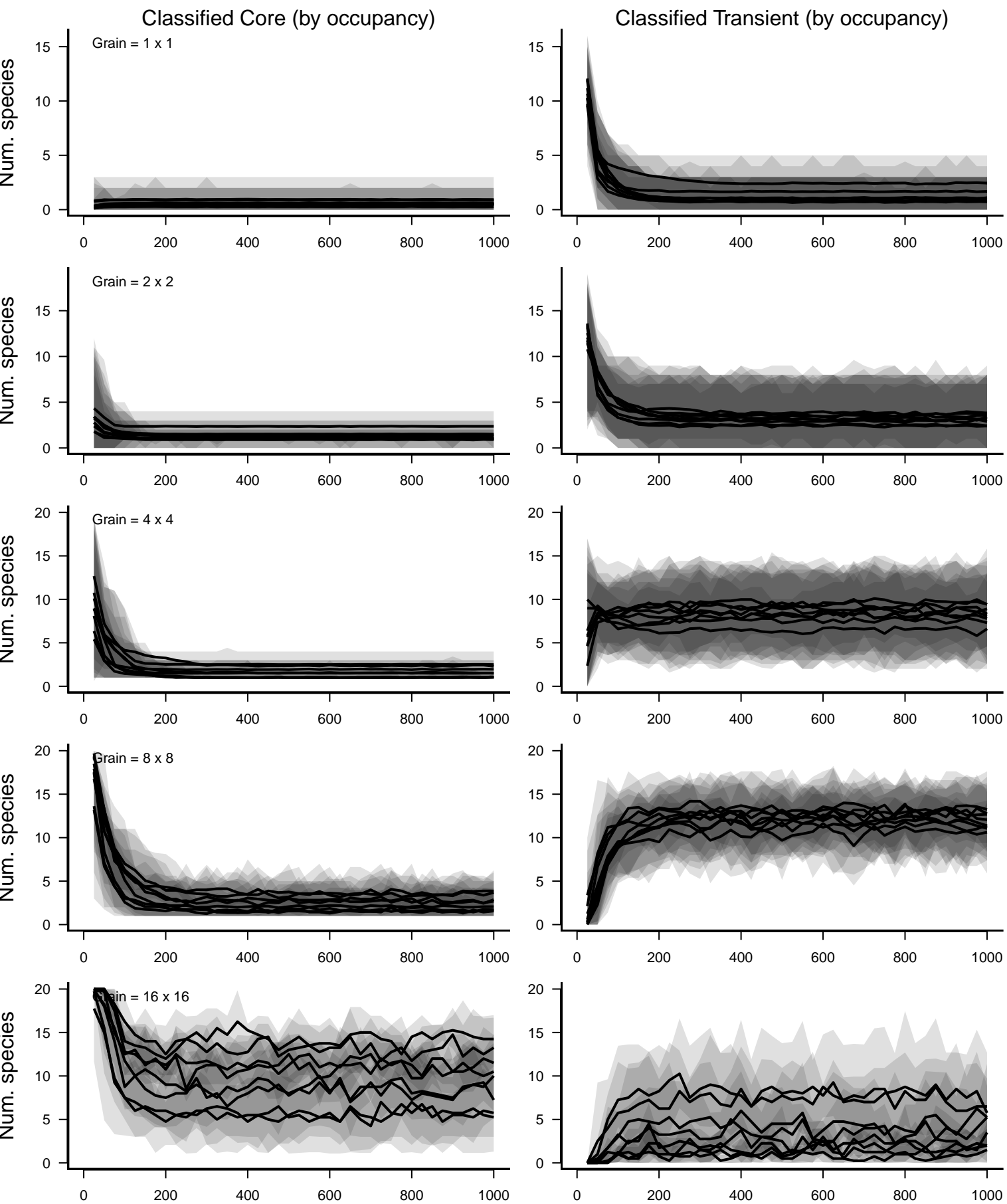
Temporal occupancy-based categories: detection prob. = 0.2



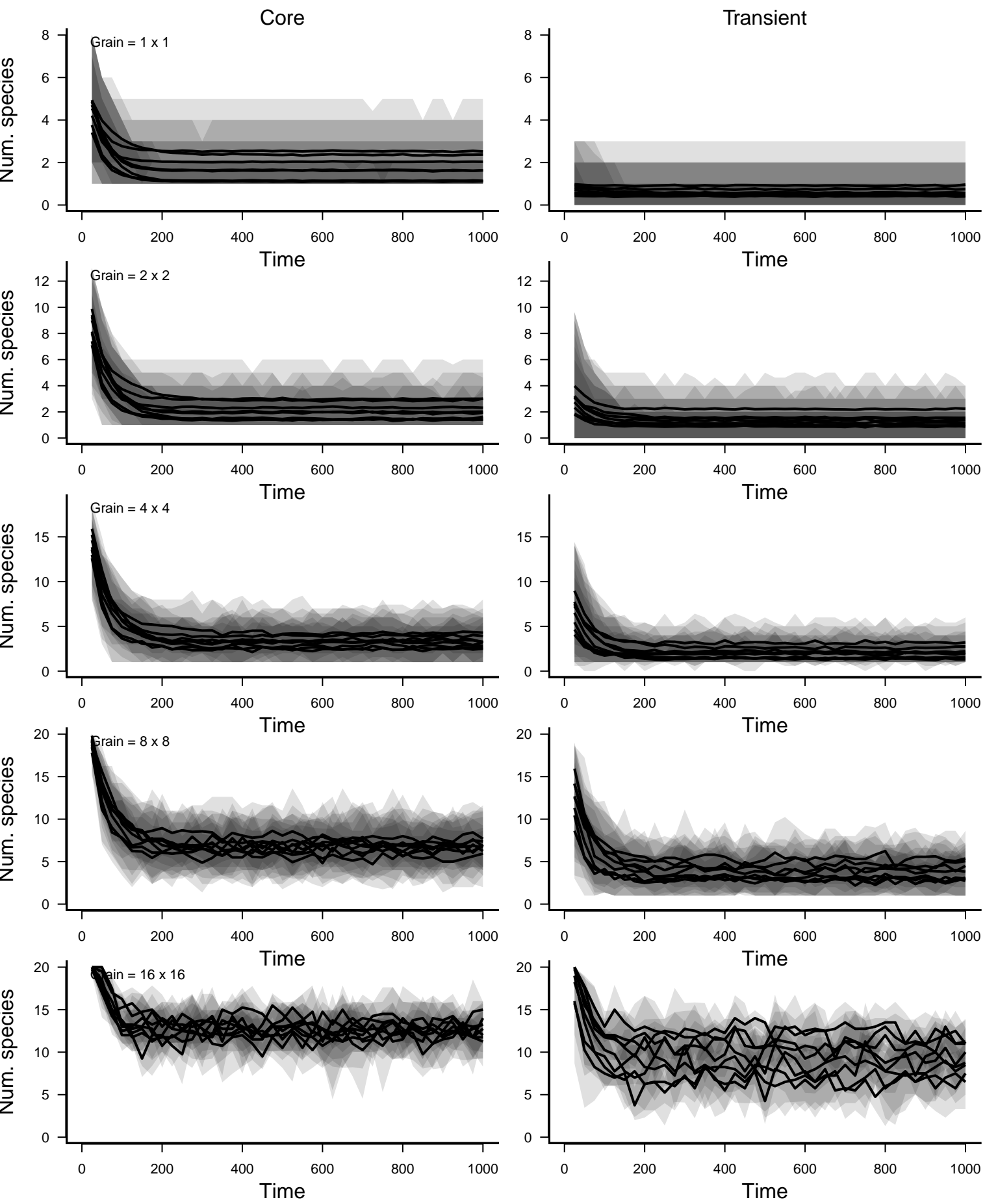
Birth rate–based Core Species: detection prob. = 0.2



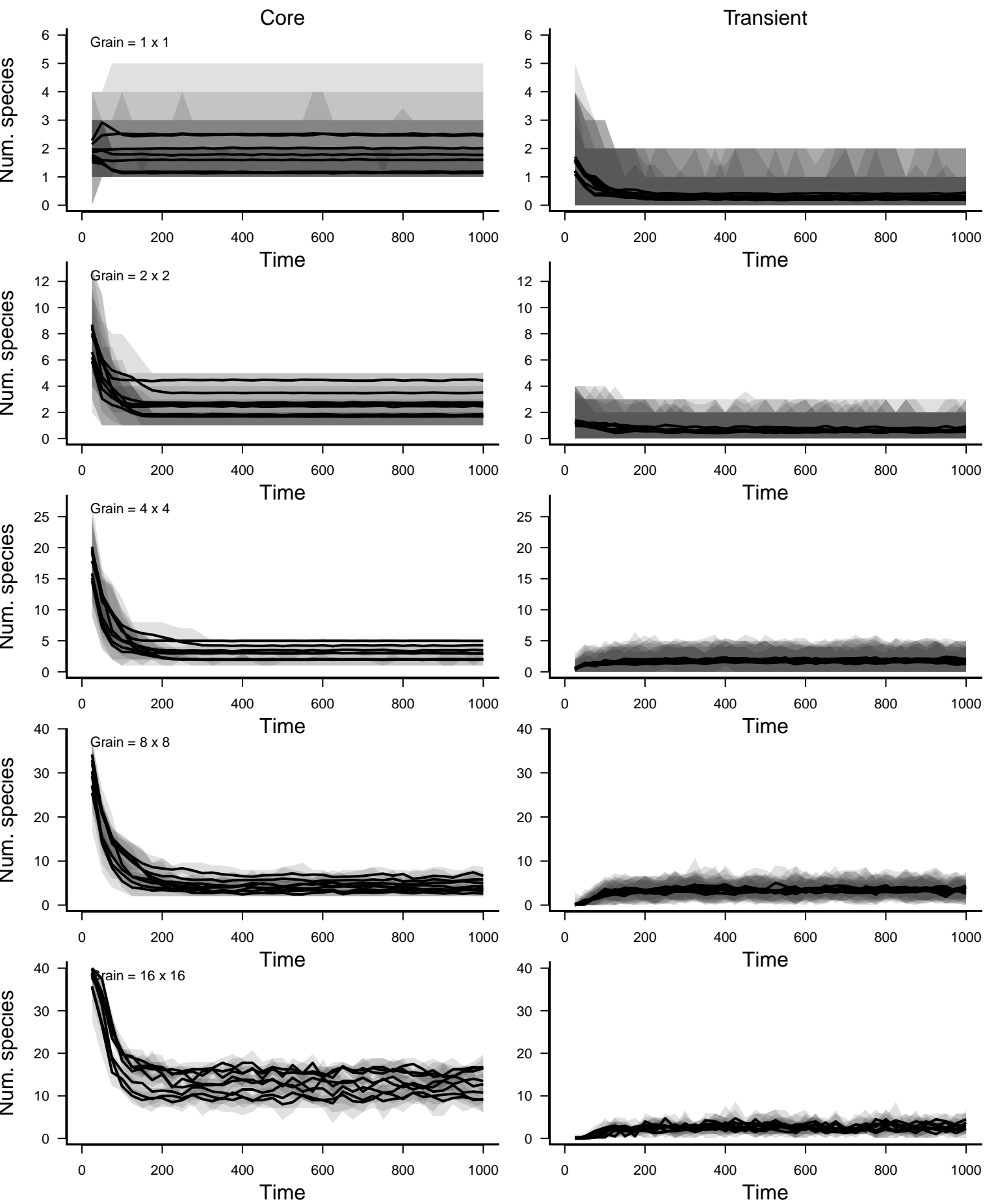
Birth rate–based Transient Species: detection prob. = 0.2



Birth rate-based categories: detection prob. = 0.1

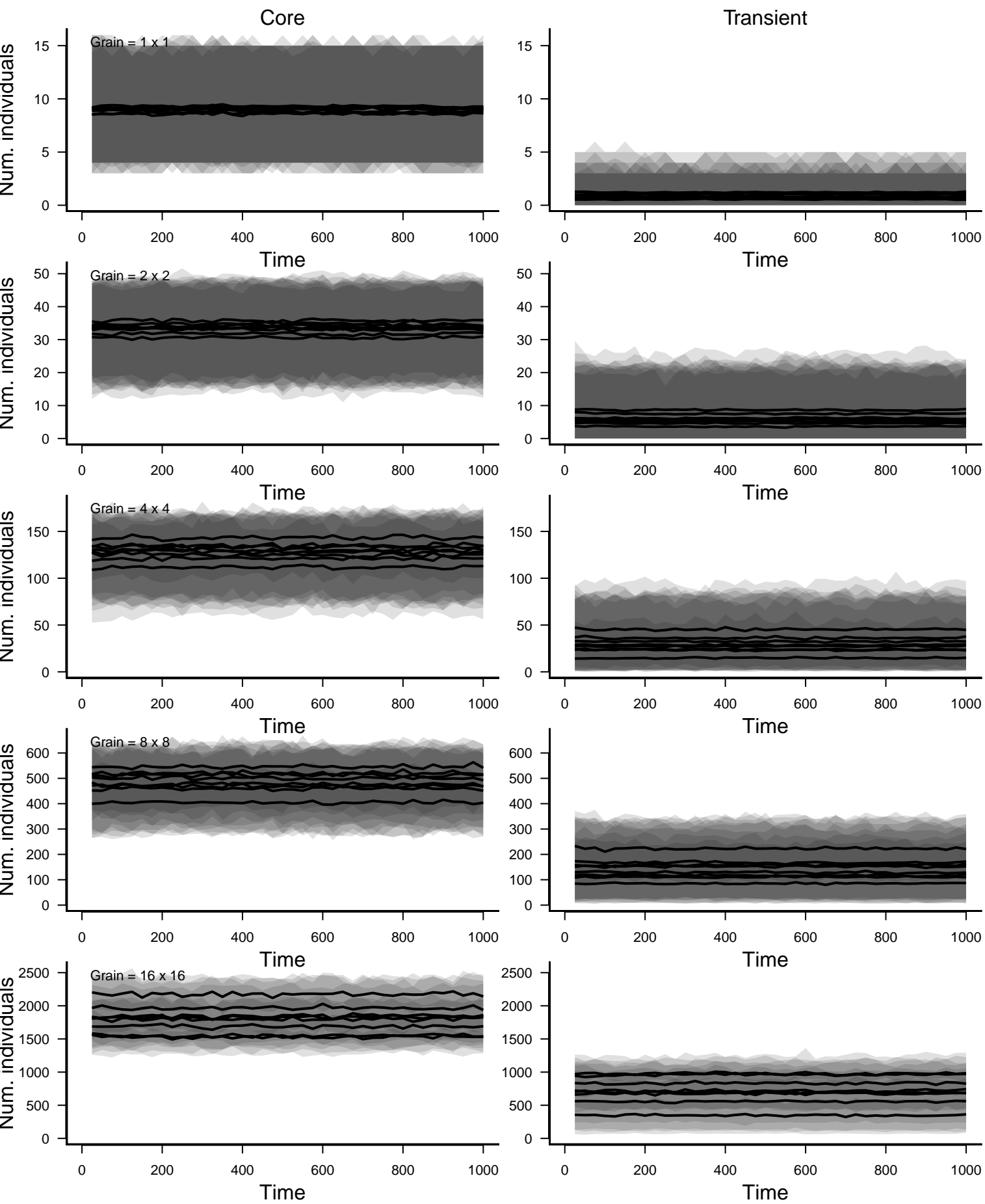


Temporal occupancy-based categories: detection prob. = 0.1

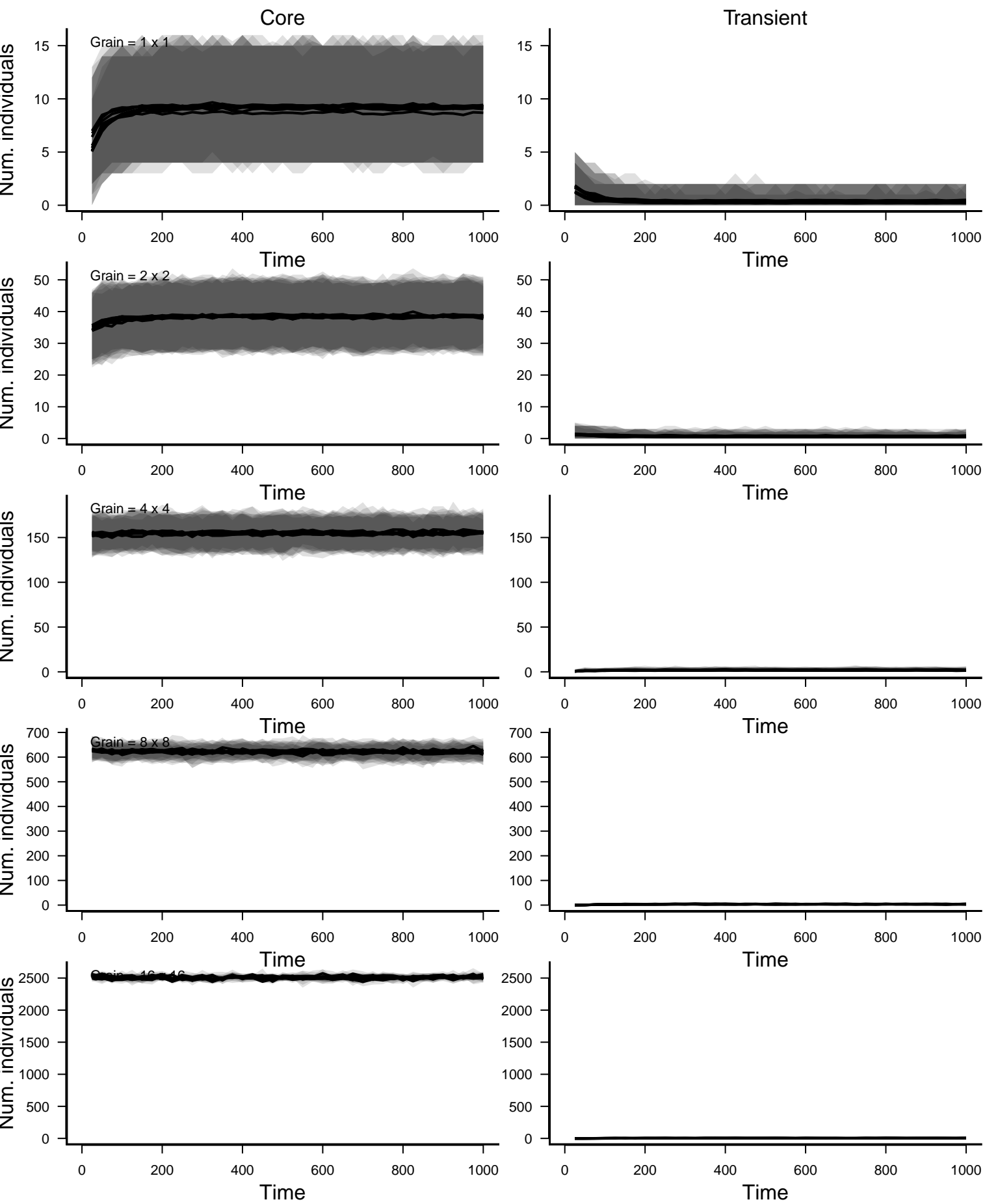




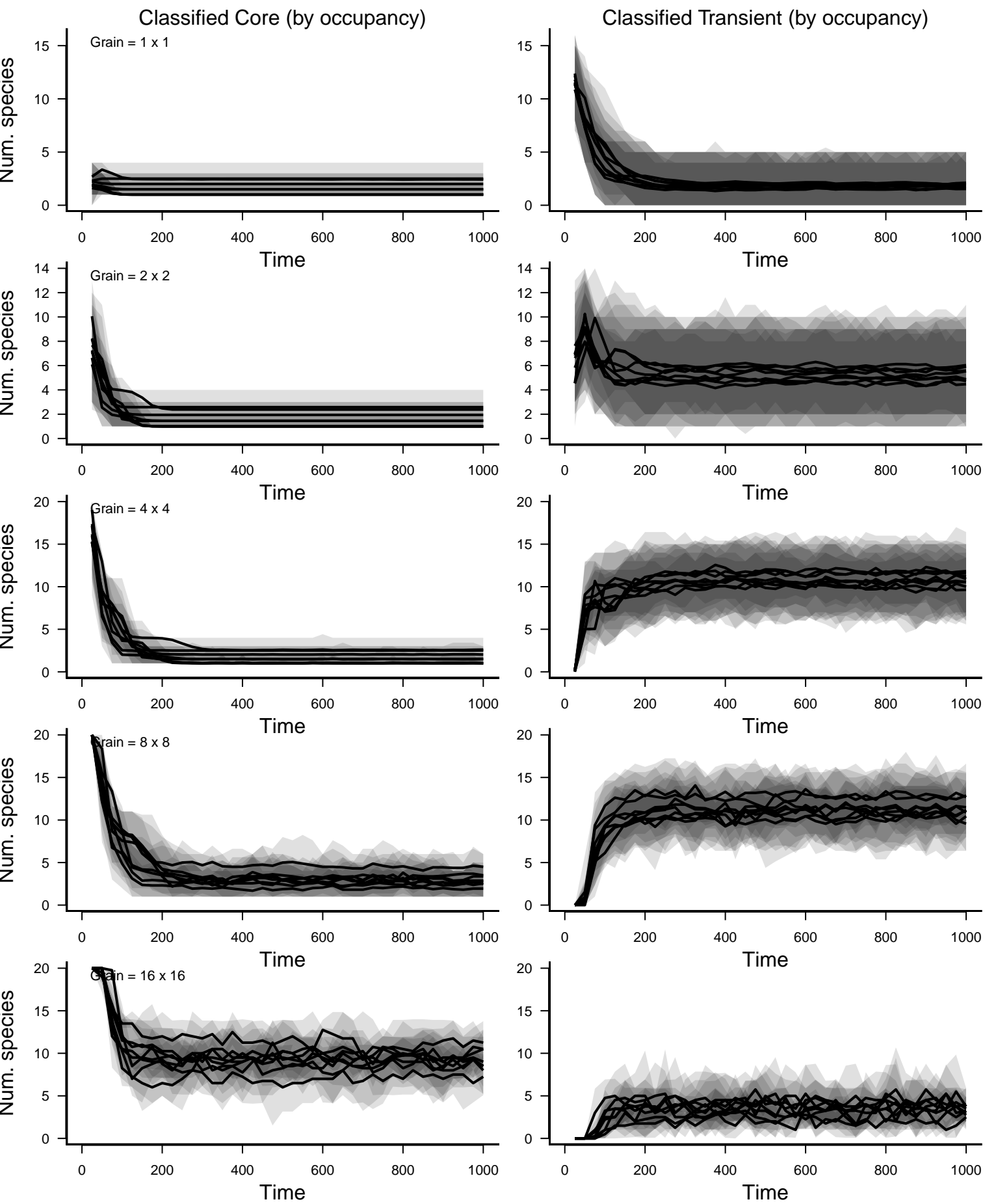
Birth rate–based categories: detection prob. = 0.1



Temporal occupancy-based categories: detection prob. = 0.1



Birth rate–based Core Species: detection prob. = 0.1



Birth rate–based Transient Species: detection prob. = 0.1

