

**Full set of starting candidate models.**

We considered the following factors: condition index ( $c$ , which can indicate HCC or SMI values), sex ( $s$ ), and time ( $t$ ). Constant parameters are noted (.). Interactions are indicated by (\*) and additive effects by (+). All possible combinations of parameters given below were modelled and tested. Global models are in bold.

Survival probability $\Phi$	Recapture probability $p$	State-transition probability $\psi$
<i>Semi-annual survival (Multistate models)</i>		
<b><math>c * s + t</math></b>	<b><math>s + t</math></b>	<b><math>c * t</math></b>
$c + s + t$	$t$	$c$
$c * s$	(.)	
$c + s$		
$c + t$		
$s + t$		
$c$		
$s$		
$t$		
<i>Monthly survival (Cormack-Jolly-Seber models where explanatory variables were later added as an individual covariates)</i>		
<b><math>s * t</math></b>	<b><math>s + t</math></b>	
$s + t$	$s$	
$s$	$t$	
$t$	(.)	
(.)		