Model (Red means implemented in RMark)	Code	RMark Example					F	arame	ters				
Live Recaptures (CJS)	Live	?dipper; ?example.data	Phi	р									
Dead Recoveries	Dead		S	r									
Both Live and Dead Encounters Burnham	Both	271 1 1 1	S	р	r	F							
Known Fate Closed Population Estimation	Known Closed	?Blackduck ?edwards.eberhardt	S		N								
BTO Dead Recoveries and Unknown Ringings	BTO	redwards.ebernardt	ç	С	N								
Robust Design with Closed Population Estimation	Robust	?robust	S	Gamma"	Gamma'	р	С	N					
Both Live and Dead Encounters Barker	Barker		S	р	r	R	R'	F	F'				
Multi-state with Live Recaptures	Multistrata		S	р	Psi								
Brownie et al. Dead Recoveries	Brownie		S	f									
Jolly-Seber Lambda Burnham	Jolly		Phi	р	Lambda	N							
Huggins Closed Population Estimation	Huggins	?edwards.eberhardt	р	C									
Robust Design with Huggins' Estimator	RDHuggins	?robust	S	Gamma"	Gamma'	р	С						
Pradel Recruitment Only Pradel Survival and Seniority	Pradel PradSen	_	Gamma Phi	p p	Gamma								
Pradel Survival and Lambda	PradLambda	_	Phi	р	Lambda								
Pradel Survival and Recruitment	PradRec		Phi	р	f								
Barker Live and Dead with Closed Robust Design	RDBarker		S	r	R	R'	Gamma"	Gamma'	F	р	С	N	
POPAN	POPAN	?dipper	Phi	р	pent	N							
Virtual Population Analysis (VPA)	VPA		M	F									
Multi-state with Live and Dead Encounters	MSLiveDead		S	р	Psi	r							
Closed Captures with Heterogeneity	HetClosed	?edwards.eberhardt	pi	p	N	NI.							
Full Closed Captures with Heterogeneity Nest Success	FullHet Nest	?edwards.eberhardt ?killdeer; ?mallard	pi S	р	С	N							
Huggins' Closed Captures with Heterogeneity	HugHet	?edwards.eberhardt	pi	n									
Huggins' Full Closed Captures with Heterogeneity Huggins' Full Closed Captures with Heterogeneity	HugFullHet	?edwards.eberhardt	pi	p p	С								
Occupancy Estimation with Detection < 1	Occupancy	?salamander; ?weta	n	Psi									
RD Occupancy Estimation with psi, epsilon.	RDOccupPE	?RDSalamander	Psi	Epsilon	р								
RD Occupancy Estimation with psi, gamma.	RDOccupPG	?RDOccupancy; ?RDSalamander	Psi	Gamma	р								
RD Occupancy Estimation with psi(1), gamma, epsilon.	RDOccupEG	?RDSalamander	Psi	Epsilon	Gamma	р							
Link-Barker Jolly-Seber	LinkBarker		Phi	р	f								
Open Robust Design Multi-state	ORDMS		S	Psi	pent	Phi	р						
Closed Robust Design Multi-state	CRDMS	?crdms	S	Psi	р	С	N						
Huggins' Closed Robust Design Multi-state Heterogeneity Closed Robust Design Multi-state	HCRDMS HetRDMS		S	Psi Psi	p	С	N.						
Full Heterogeneity Closed Robust Design Multi-state	FHetRDMS	_	S	Psi	pi pi	p p	N C	N					
Huggins' Het. Closed Robust Design Multi-state	HHetRDMS		S	Psi	pi	р							
Huggins' Full Het. Closed Robust Design Multi-state	HFHetRDMS		S	Psi	pi	р	С						
Robust Design with Heterogeneity Estimator	RDHet	?robust	S	Gamma"	Gamma'	pi	р	N					
Robust Design with Full Heterogeneity Estimator	RDFullHet		S	Gamma"	Gamma'	pi	р	С	N				
Robust Design with Huggins' Het. Estimator	RDHHet		S	Gamma"	Gamma'	pi	р						
Robust Design with Huggins' Full Het. Estimator	RDHFHet		S	Gamma"	Gamma'	pi	p "	С					
Barker Live and Dead with Huggins' Robust Design	RDBarkHug	_	5	r	K D	R'	Gamma"	Gamma'		p	C	N.	
Barker Live and Dead with Heterogeneity Robust Design Barker Live and Dead with Full Het. Robust Design	RDBarkHet RDBarkFHet	_	S	r	R R	R'	Gamma" Gamma"	Gamma' Gamma'	F	pi pi	p p	N C	N
Barker Live and Dead with Huggins' Het. Robust Design	RDBarkHHet		S	r	R	R'	Gamma"	Gamma'	F	pi pi	р		IV
Barker Live and Dead with Huggins' Full Het. Robust Design	RDBarkHFHet		S	r	R	R'	Gamma"	Gamma'	F	pi	р	С	
Lukacs Young Survival from Marked Adults	LYSMA		Phi	р									
Robust Design Pradel Seniority Closed Population Estimation	RDPdGClosed		Phi	Gamma	р	С	N						
Robust Design Pradel Seniority Huggins' Closed Populations	RDPdGHuggins		Phi	Gamma	р	С							
Robust Design Pradel Seniority Closed Captures with Heterogeneity	RDPdGHet		Phi	Gamma	pi	р	N						
Robust Design Pradel Seniority Full Closed Captures with Het.	RDPdGFullHet		Phi	Gamma	pi	р	С	N					
Robust Design Pradel Seniority Huggins' Closed Captures with Het. Robust Design Pradel Seniority Huggins' Full Closed Captures with Het.	RDPdGHugHet RDPdGHugFullHet		Phi Phi	Gamma Gamma	pi	p	С						
Robust Design Pradel Semonty Huggins Full Closed Captures with net. Robust Design Pradel Lambda Closed Population Estimation	RDPdLClosed	_	Phi	Lambda	pi p	p c	N						
Robust Design Pradel Lambda Huggins' Closed Populations	RDPdLHuggins		Phi	Lambda	р	С							
Robust Design Pradel Lambda Closed Captures with Heterogeneity	RDPdLHet		Phi	Lambda	pi	р	N						
Robust Design Pradel Lambda Full Closed Captures with Het.	RDPdLFullHet		Phi	Lambda	pi	р	С	N					
Robust Design Pradel Lambda Huggins' Closed Captures with Het.	RDPdLHugHet		Phi	Lambda	pi	р							
Robust Design Pradel Lambda Huggins' Full Closed Captures with Het.	RDPdLHugFullHet		Phi	Lambda	pi	р	С						
Robust Design Pradel Recruitment Closed Population Estimation	RDPdfClosed		Phi	f	р	С	N						
Robust Design Pradel Recruitment Huggins' Closed Populations	RDPdfHuggins		Phi	f	p ni	C	N						
Robust Design Pradel Recruitment Closed Captures with Heterogeneity Robust Design Pradel Recruitment Full Closed Captures with Het	RDPdfHet RDPdfFullHet		Phi Phi	f	pi ni	p	N	N					
Robust Design Pradel Recruitment Full Closed Captures with Het. Robust Design Pradel Recruitment Huggins' Closed Captures with Het.	RDPdfHugHet		Phi	f	pi pi	p p	С	N					
Robust Design Pradel Recruitment Huggins' Full Closed Captures with Het.	RDPdfHugFullHet		Phi	f	pi pi	p	С						
Open Robust Design Pradel Multi-state	ORDPdMS		S	Psi	Gamma	pent	Phi	р					
Huggins Closed Robust Design Multi-state with State Probabilities	CRDMSOHug		S	Psi	Omega	р	С						
Huggins Heterogeneity Closed Robust Design Multi-state with State Probabilities	CRDMSOHet		S	Psi	Omega	pi	р						
Huggins Full Heterogeneity Closed Robust Design Multi-state with State Probabilities	CRDMSOFHet		S	Psi	Omega	pi	р	С					
Occupancy Heterogeneity Estimation with Detection < 1	OccupHet	?salamander	pi	р	Psi								

RD Occupancy Heterogeneity Estimation with psi, epsilon	RDOccupHetPE		Psi	Epsilon	pi	р				
RD Occupancy Heterogeneity Estimation with psi, gamma	RDOccupHetPG		Psi	Gamma	pi	р				
RD Occupancy Heterogeneity Estimation with psi(1), gamma, epsilon	RDOccupHetEG		Psi	Epsilon	Gamma	pi	р			
Occupancy Estimation Royle/Nichols Poisson Abundance	OccupRNPoisson	?Donovan.7	r	Lambda						
Occupancy Estimation Royle/Nichols Negative Binomial Abundance	OccupRNNegBin	?Donovan.7	r	Lambda	VarAdd					
Two species Occupancy Estimation	2SpecOccup		PsiAB	PsiA	PsiB	pA	pB	rAB	rAb	raB
Logit-Normal Mark Resight	LogitNormalMR	?LogitNormalMR	р	sigma	N					
Poisson Mark Resight with Robust Design	PoissonMR	?PoissonMR, ?Poisson_twoMR	alpha	sigma	U	Phi	Gamma"	Gamma'		
Multiple-State Occupancy Estimation	MSOccupancy	?NicholsMSOccupancy	Psi1	Psi2	p1	p2	Delta			
Occupancy Estimation Royle Poisson Counts	OccupRPoisson	?Donovan.8	r	Lambda						
Occupancy Estimation Royle Negative Binomial Counts	OccupRNegBin	?Donovan.8	r	Lambda	VarAdd					
Open Robust Design Multi-state with State Probabilities	ORDMSState		S	Psi	Omega	pent	Phi	р		
Immigration-Emigration Logit-Normal Mark Resight	IELogitNormalMR	?IELogitNormalMR	р	sigma	Nbar	alpha	Nstar			
Robust Design Multi-state Closed with Mis-classification	RDMSMisClass		S	Psi	pi	Omega	р	Delta		
Robust Design Multi-state Closed with 2 Mis-classifications	RDMS2MisClass		S	Psi	pi	Omega	р	Delta		
Multi-scale occupancy estimation	MultScalOcc		Psi	Delta	р					
Robust Design Multiple-State Occupancy Estimation Conditional Binomial	RDMSOccRepro		Phi0	Psi	R	р	Delta			
Robust Design Multiple-State Occupancy Estimation General	RDMSOccupancy		Phi0	Psi	р					
Robust Design Multi-state Open with Mis-classification	RDMSOpenMisClass		S	Psi	pi	Omega	р	Delta	pent	Phi
Robust Design Multi-state Open with 2 Mis-classifications	RDMS2OpenMisClass		S	Psi	pi	Omega	р	Delta	pent	Phi
Density estimation with Huggins p and c	Densitypc		р	С	ptilde					
Density estimation with Huggins heterogeneity pi and p	DensityHet		pi	р	ptilde					
Density estimation with Huggins full heterogeneity pi, p and c	DensityFHet		pi	р	С	ptilde				
Cormack-Jolly-Seber model with Pledger mixtures	CJSMixture		pi	Phi	р					
Pradel Survival and Seniority with Pledger mixtures	PradSenMix		Phi	pi	р	Gamma				
Pradel Survival and Lambda with Pledger mixtures	PradLambdaMix		Phi	pi	р	Lambda				
Pradel Survival and Recruitment with Pledger mixtures	PradelRecMix		Phi	pi	р	f				
Link-Barker Survival and Recruitment with Pledger mixtures	LinkBarkMix		Phi	pi	р	f				
Cormack-Jolly-Seber model with Random Effects	CJSRandom		sigmaphi	Phi	sigmap	р				
Link-Barker Survival and Recruitment with Random Effects	LinkBarkRan		sigmaphi	Phi	sigmap	р	sigmaf	f		
Two species Conditional Occupancy Estimation	2SpecConOccup		PsiA	PsiBA	PsiBa	pA	pB	rA	rBA	rBa