

11.7.3 Veterinary drugs suggested for sedation and anesthesia of European bison

Anesthetics for wild animals can be divided in five different groups:

- o **Opioids:** Etorphine (as in Immobilon®), fentanyl, thiafentanyl, carfentanyl (USA only), butorphanol
- o **Dissociatives/cyclohexanes:** ketamine, tiletamine (as in Zoletil®)
- o **Alfa-2 agonists:** xylazine, detomidine, medetomidine, dexmedetomidine, romifidine
- o **Tranquillizers/Neuroleptics:**
 - Major tranquillizers: Phenothiazine derivatives: acepromazine, Buterophenone derivatives: azaperone, haloperidol
 - Minor tranquillizers/benzodiazepines: diazepam, midazolam, zolazepam (as in Zoletil®)
 - Long acting neuroleptics (LAN's), are phenothiazine-derivates dissolved in vegetal oil for depot effect: perfenazine, zuclopentixol
- o **Antagonists:**
 - Alfa-2 antagonists: yohimbine, tolazoline (xylazine only), Atipamezole (all)
 - Opioids antagonists: pure antagonists naloxone, naltrexone, partial antagonists deprenorphine, nalorphine
 - Benzodiazepine: flumazenil, sarmazenil
 - There are no antagonists for the major tranquillizers and dissociatives (ketamine, etc.).

For details (update for 2020) see Appendix 2.

APPENDIX 1

Table A1. Veterinary preparations for the translocation of European bison (© Mark Hoyer)

Test	Notes	Check	Method
<i>Compulsory / EU regulations</i>			
Tuberculosis (TB)	If positive, animal cannot go on transport	Skin, blood	Intradermal skin test (IDST) still only accepted test in many countries, the second is blood test
Brucellosis	If positive, animal cannot go on transport	Blood	Antibodies
<i>Compulsory depending on country regulations</i>			
Enzootic bovine leucosis	Presently not applicable	Blood	Antibodies
Blue Tongue	Presently not applicable	Blood	Antibodies or antigen
<i>Additional requirements - optional</i>			
Bovine Viral Diarrhea (BVD)	If positive, animal cannot go on transport	Blood	Antibodies, antigen (antigen should be negative)
Infectious bovine rhinotracheitis (IBR)	If positive, animal cannot go on transport	Blood	gB test
Para tbc	If positive, animal cannot go on transport	Blood / faeces	Antibodies / faecal culture
Leptospirosis	If positive, animal cannot go on transport	Blood	Antibodies
Babesia	If positive, treat	Blood	Smear / PCR
Endoparasites: Blood	If positive, treat	Blood	Antibodies: Lungworm, Liver fluke
Endoparasites: Faeces	If positive, treat	Faeces	Liver fluke, Gastrointestinal worms (Trichostrongylus/ Strongylus) flotation. Lungworm larvae
Infectious Balanoposthitis	If positive, animal cannot go on transport	Clinical signs	Clinical signs / Culture
<i>Treatment / vaccination / additional</i>			
Treatment	Ectoparasites, endoparasites, liverfluke, lungworm, Babesia		
Vaccination	Lungworm, Babesia		
Miscellaneous	Chip, genetic samples, blood samples (serum / heparine) for future reference		

APPENDIX 2

Table A2. Veterinary drugs used for sedation and anesthesia of European bison (© Mark Hoyer)

Generic name	Strenght (mg/ml)	Tradename	Company	Websites
Acethylpromazine	10	Neurotranq®	Alfasan, NI	www.alfasan.nl
Atipamezole	5	Antisedan®	Orion, Finland	www.orionpharma.com
		Atipam®, Sedastop®, etc	Various companies	
Azaperone	40	Stresnil®	Elanco	https://www.elanco.nl
	100	Zapnil®	Wildlife Pharmaceuticals, RSA	www.info.wildpharm.com
	50, 100	Azaperone	Kyron Laboratories, RSA	www.kyronlabs.co.za
Biperideen	5	Akineton®	Sirton Pharmaceuticals, Itali	https://www.sirton.it
	10	Torbugesic®	Zoetis	www.zoetis.nl
Butorfanol		Dolororex®	Intervet, NL	www.intervet.nl
	20, 50	Butorphanol 20, 50	Kyron Laboratories, RSA	www.kyronlabs.co.za
	50	Butonil®	Wildlife Pharmaceuticals, RSA	www.info.wildpharm.com
Diazepam		Valium®	Roche	https://www.roche.nl
Diprenorfine	3	LA-Revivon	Novartis, UK; off the market	www.novartis.co.za
		M5050®	Novartis, UK	www.novartis.co.za
	12	Activon®	Wildlife Pharmaceuticals RSA	www.info.wildpharm.com
Detomidine	10	Domosedan®	Véticinel	https://www.vetoquinol.com
		Domidine®, Detosedan®	Dechra Vet. Products, AST Farma	https://www.dechra.com/

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Generic name	Strenght (mg/ml)	Tradename	Company	Websites
Etorfine	2,25	LA-Immobilon®	Novartis; off the market	www.novartis.co.za
		Etorfine 2.25	Pharmacy, Fac.Vet. Med., NL	www.apotheek.uu.nl
	9,8	Captivon®	Wildlife Pharmaceuticals, RSA	www.info.wildpharm.com
		M99	Novartis Animal Health UK	www.novartis.co.za
Flumazenil	0,1	Anexate®	Roche	https://www.roche.nl
Haloperidol	20	Perinil®	Wildlife Pharmaceuticals, RSA	www.info.wildpharm.com
		Haloperidol 20	Kyron Laboratories, RSA	www.kyronlabs.co.za
Ketamine	100	Many		
	1000 dry	Ketamine 1 gram	Kyron Laboratories, RSA	www.kyronlabs.co.za
Medetomidine	1	Domitor®, Sedastop®	Véticinol	https://www.vetoquinol.com
	10	Zalopine®	Orion Cooperation, Finland	www.orionpharma.com
	10, 20, 40	Medetomidine	Kyron Laboratories, RSA	www.kyronlabs.co.za
	40	Metonil®	Wildlife Pharmaceuticals, RSA	www.info.wildpharm.com
Midazolam	5	Dormicum®	Roche	https://www.roche.nl
	50	Dazonil®	Wildlife Pharmaceuticals, RSA	www.info.wildpharm.com
		Midazolam 50	Kyron Laboratories, RSA	www.kyronlabs.co.za

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Generic name	Strenght (mg/ml)	Tradename	Company	Websites
Naloxone	0,4	Narcan®	DuPont Pharma	https://www.pharma.dupont.com/
	50	Trexonil®	Wildlife Pharmaceuticals, RSA	www.info.wildpharm.com
		Naltrexone 50	Kyron Laboratories, RSA	www.kyronlabs.co.za
		Naltrexone 50	Pharmacy, Fac. Vet. Med., NI	www.apotheek.uu.nl
Perfenazine	100	Trilafon LA®	Sherag, Gujarat, India	http://chiragpharmaagency.com/
		Perfenazine 100	Kyron Laboratories, RSA	www.kyronlabs.co.za
Romifidine	10	Sedivet®	Boehringer Ingelheim	https://www.boehringer-ingelheim.nl
Sarmazenil	0,1	Sarmsol®	Graub AG, Ch.	https://www.graebuoffice.ch/
Thiafentanil	10	Thiafentanil®	Wildlife Pharmaceuticals, RSA	www.info.wildpharm.com
Tiletamine	250	Zoletil 100® en 50®	Virbac, NI	https://www.virbac.nl
Xylazine	20	Various tradenames	Various	
	100	Sedazine 10%	AST-Farma BV, NI	https://www.astfarma.nl/
	500 powder	Xylaset 500 mg®	Bioveta, A.S Czech Republic	https://www.bioveta.cz/
		Xylazine dry powder	Kyron, RSA	www.kyronlabs.co.za
Yohimbine	6,25	+ aminopyridine	Kyron Laboratories, RSA	www.kyronlabs.co.za
Zolazepam	250	Zoletil 100® and 50®	Virbac, The Netherlands	https://www.virbac.nl
Zuclopenthixol	50	Cisordinol Acutard®	Lundbeck, Denmark	https://www.lundbeck.com/dk
	200	Cisordinol 200 depot®	Lundbeck, Denmark	https://www.lundbeck.com/dk
	500	Cisordinol 500 depot®	Lundbeck, Denmark	https://www.lundbeck.com/dk