Supplementary material for
A survey and critical review of wombat diets in captivity

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Appendix 1 – Diet survey distributed to zoos and wildlife parks

Wombat Nutrition and Health in Captivity - Zoos/Wildlife Parks

Wombat Nutrition

This survey is being conducted as part of an undergraduate research project at Western Sydney University. The project is examining captive wombat diets, how diet affects health, and how captive diets compare to the nutrition of wild wombats. The aim of the survey is to determine the current feeding regimes and health of wombats in captivity.

The survey consists of three sections (Introductory questions, Wombat information, and Feeding program). Each section contains a series of questions. Please provide an honest response to each question. Please note that many of the questions require information to be collected prior to beginning the online survey – for details about the information that questions will require, see the survey document (attached to the email that you will have received regarding survey completion).

By completing this survey, you give consent for your answers to be used for analysis by the researchers listed on the approval for up to 15 years, after which all data will be discarded. Your answers will remain anonymous.

Your participation is greatly appreciated.

Below are links to two important files for survey completion - the first is a participant information sheet, outlining eligibility and further survey details, and the second is a diet information sheet, which should be filled out and uploaded in the appropriate survey question.
Introductory Questions

Please classify your facility as one of the following:

- Zoo
- Wildlife park
- Rehabilitation centre
- Sanctuary
- Wildlife carer

Which state is your facility located in?

- WA
- NT
- SA
- ACT
- QLD
- NSW
- VIC
- TAS
- Other - please specify (e.g. if outside Australia):  

________________________________________________
Do you have permission from your manager/business owner or other authorising person to complete this survey?

☐ Yes

☐ No

If you wish to receive a copy of the results of this study, please provide a name and email address. If you do not complete this question, your answers will remain anonymous. Please note that all data will be deidentified, so even if you do provide contact details, the answers that you provide will not be associated with your facility.

________________________________________________________________

Wombat Information

Are the wombats currently in the zoo/wildlife park (please select all that apply):

☐ Adult male non-reproductive

☐ Adult male reproductive

☐ Adult female non-reproductive

☐ Adult female reproductive

☐ Juvenile male weaned

☐ Juvenile male non-weaned (reliant on milk)

☐ Juvenile female weaned

☐ Juvenile female non-weaned (reliant on milk)
Are the wombats in the zoo/wildlife park captive born?

- Yes
- No
- Other (e.g. mix of captive and wild born animals)

How many wombats are currently in the zoo/wildlife park?

- 1
- 2
- 3
- 4
- 5 - 10
- 10+

What species of wombats, and how many of each species, are present in the zoo/wildlife park?

- Common or bare-nosed wombat ________________________________
- Southern hairy-nosed wombat ________________________________
Are wombats individually housed?

- Yes
- No
- Other (e.g. mix of individual and group housing)

**Feeding Program**

**Diet Details**

Please upload the diet information table (attached to the email received about survey completion) here.

How long has the diet described been implemented for?

- 1 - 3 months
- 3 – 6 months
- 6 – 12 months
- 1 – 3 years
- 3+ years
Are the wombats generally given any mineral/vitamin supplements?

- No, not generally
- Only if recommended by veterinarian or animal nutritionist
- Yes – please provide details of what mineral/vitamin supplement: __________________________________________________
- Other – please specify: ________________________________________________

Diet Variation

Are there any seasonal changes to the diet? (This may be in terms of amounts of each feed item given, in terms of broad food categories, e.g. amounts of grasses, vegetables may vary, in terms of specific feed items, etc.)

- Yes
- No
If there are seasonal changes, please select any of the following statements that may be relevant to these changes:

- □ Changes due to availability of fruit/vegetables
- □ Changes due to availability of grass species
- □ Changes due to pricing of food items
- □ Same foods given to wombats but amounts of each food vary across seasons
- □ Same broad food categories given to wombats, but specific types of grasses/fruit/vegetables/etc. are varied
- □ Other – please provide any other relevant comments/statements:

_________________________________________________________________________________

Are there any individual variations to the diet in place for breeding individuals?

- □ Yes
- □ No
- □ No breeding individuals present

_________________________________________________________________________________

Are there any individual variations to the diet in place for lactating individuals?

- □ Yes
- □ No
- □ No lactating individuals present

_________________________________________________________________________________
Are there any individual variations to the diet in place for young wombats prior to weaning?

- Yes
- No
- No young wombats present

When are young wombats transferred to the previously described adult diet, i.e. are completely weaned?

- Prior to 12 months of age
- 12 – 14 months of age
- 14 – 18 months of age
- 18+ months of age
- No young wombats present

Please provide any further details or comments about individual variations to the diet that do not apply to the above questions. (For example, diet differences due to gender, medical conditions, etc.).

Feeding Behaviours
How are the wombats fed?

- [ ] In a group
- [ ] Individually
- [ ] Both
- [ ] Other – please specify: ________________________________________________

If wombats are fed in a group context, what feeding behaviours are observed to occur? Please select all that apply.

- [ ] Feeding dominance
- [ ] Older individuals feeding first
- [ ] Younger individuals feeding first
- [ ] Males feeding first
- [ ] Females feeding first
- [ ] None observed
- [ ] Other – please specify:
Are there opportunities for the wombats to consume matter in their enclosure that is not fed to them directly? (For example, are there grasses or other plant matter growing in the wombats’ enclosure that they may consume?)

- Yes
- No
- Unsure

Please give any further notes or comments regarding diet and feeding behaviours, if relevant. This may include any ‘favourite’ food items.

Diet Reference Material

Where is information about wombat diet gained from? I.e. what references/resources are used in making decisions about wombat diet?

- Husbandry manual/s
- Published guide/s
- Advice from veterinarian
- Advice from animal nutritionist
- Online research
- Other – please specify: ____________________________________________
Over the past five years, have there been any changes made to wombat diet?

- Yes
- No

If yes, why have these changes been implemented?

________________________________________________________________________

Nutrition and Health

For what reason/s has the wombat/s seen a veterinary professional in the last 6 months?

________________________________________________________________________

How often do the wombats undergo a health check?

- Monthly
- Every 2 months
- Every 3 – 4 months
- Every 5 – 6 months
- Every 6 - 12 months
- Every 12+ months
Have any of the wombats ever been diagnosed with a nutritional or gastrointestinal disorder/disease OR a dental disorder/disease by a veterinarian?

☐ Yes

☐ No
If yes, please select any of the following that apply to the nutritional disorder/disease:

☐ Nutrient/vitamin deficiency

☐ Nutrient/vitamin toxicity

☐ Copper toxicity

☐ Lactose excess/intolerance

☐ Poor body condition observed

☐ Irregular faeces/diarrhoea occurred

☐ Weight loss observed

☐ Bloating observed

☐ Overgrowth of teeth due to insufficient tooth wear

☐ Malocclusion (overbite) or other teeth alignment issues

☐ Impaired feeding ability observed

☐ Mouth injury

☐ Mouth infection

☐ Other – please specify: ________________________________________________
If yes, what actions or treatment were taken? Please select all that apply.

☐ Change in diet – permanent
☐ Change in diet – temporary
☐ Medication
☐ Vitamin/mineral supplements
☐ Surgical procedure
☐ Other - please specify: ________________________________________________

Please add any other information that you can provide regarding diet.

________________________________________________________________
Appendix 2 – Diet survey distributed to carers, sanctuaries and other wildlife care facilities

Wombat Nutrition and Health in Captivity - Sanctuaries/Carers

Wombat Nutrition

This survey is being conducted as part of an undergraduate research project at Western Sydney University. The project is examining captive wombat diets, how diet affects health, and how captive diets compare to the nutrition of wild wombats. The aim of the survey is to determine the current feeding regimes and health of wombats in captivity.

The survey consists of three sections (Introductory questions, Wombat information, and Feeding program). Each section contains a series of questions. Please provide an honest response to each question. Please note that many of the questions require information to be collected prior to beginning the online survey – for details about the information that questions will require, see the survey document (attached to the email that you will have received regarding survey completion).

By completing this survey, you give consent for your answers to be used for analysis by the researchers listed on the approval for up to 15 years, after which all data will be discarded. Your answers will remain anonymous.

Your participation is greatly appreciated.

Below are links to two important files for survey completion - the first is a participant information sheet, outlining eligibility and further survey details, and the second is a diet information sheet, which should be filled out and uploaded in the appropriate survey question.
Introductory Questions

Please classify your facility as one of the following:

- Zoo
- Wildlife park
- Rehabilitation centre
- Sanctuary
- Wildlife carer

Which state is your facility located in?

- WA
- NT
- SA
- ACT
- QLD
- NSW
- VIC
- TAS

- Other (e.g. if outside Australia): ____________________________________________
Do you have permission from your manager/business owner or other authorising person to complete this survey?

- [ ] Yes
- [ ] No

If you wish to receive a copy of the results of this study, please provide a name and email address. If you do not complete this question, your answers will remain anonymous. Please note that all data will be deidentified, so even if you do provide contact details, the answers that you provide will not be associated with your facility.

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Wombat Information

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Are the wombats currently in your care (please select all that apply):

- [ ] Adult male non-reproductive
- [ ] Adult male reproductive
- [ ] Adult female non-reproductive
- [ ] Adult female reproductive
- [ ] Juvenile male weaned
- [ ] Juvenile male non-weaned (reliant on milk)
- [ ] Juvenile female weaned
- [ ] Juvenile female non-weaned (reliant on milk)
Are the wombats in your care captive born?

- Yes
- No
- Other (e.g. mix of captive and wild born animals)

How many wombats are currently in your care?

- 1
- 2
- 3
- 4
- 5 - 10
- 10+

What species of wombats, and how many of each species, are present in your care?

- Common or bare-nosed wombat ____________________________
- Southern hairy-nosed wombat ____________________________
Are wombats individually housed?

- Yes
- No
- Other (e.g. mix of individual and group housing)

For what reasons have wombats come into your care (please select all that apply)?

- Hit by a car
- Injured by a trap
- Poisoned by bait
- Affected by sarcoptic mange
- Burrow was buried over
- Been shot/have bullet wound
- Wombat brought in as juvenile with injured mother
- Fight wounds from other animals
- Other (please describe): ________________________________________________

Feeding Program

Diet Details
Please upload the diet information table (attached to the email received about survey completion) here.

How long has the diet described been implemented for?

- 1 - 3 months
- 3 – 6 months
- 6 – 12 months
- 1 – 3 years
- 3+ years

Does wombat diet generally change from when the wombats are admitted to care until their release?

- Yes
- No
If yes, please select any of the following reasons that may apply:

☐ Injury/condition when admitted to care meant that standard diet had to be modified due to physical feeding difficulties

☐ Injury/condition when admitted to care meant that more of certain nutrients/vitamins were required

☐ Wombats exhibited a preference to certain foods

☐ Wombats rejected certain foods

☐ Wombats were pre-weaning age when admitted to care (i.e. were reliant on milk) and post-weaning age when released

☐ Other – please specify: ____________________________

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Are the wombats generally given any mineral/vitamin supplements?

☐ No, not generally

☐ Only if recommended by veterinarian or animal nutritionist

☐ Yes – please provide details of what mineral/vitamin supplement:

________________________________________________

☐ Other – please specify: ____________________________

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*Diet Variation*
Are there any seasonal changes to the diet? (This may be in terms of amounts of each feed item given, in terms of broad food categories, e.g. amounts of grasses, vegetables may vary, in terms of specific feed items, etc.)

- Yes
- No

If there are seasonal changes, please select any of the following statements that may be relevant to these changes:

- Changes due to availability of fruit/vegetables
- Changes due to availability of grass species
- Changes due to pricing of food items
- Same foods given to wombats but amounts of each food vary across seasons
- Same broad food categories given to wombats, but specific types of grasses/fruit/vegetables/etc. are varied
- Other – please provide any other relevant comments/statements:

Are there any individual variations to the diet in place for breeding individuals?

- Yes
- No
- No breeding individuals present
Are there any individual variations to the diet in place for lactating individuals?

- Yes
- No
- No lactating individuals present

Are there any individual variations to the diet in place for young wombats prior to weaning?

- Yes
- No
- No young wombats present

When are young wombats transferred to the previously described adult diet, i.e. are completely weaned?

- Prior to 12 months of age
- 12 – 14 months of age
- 14 – 18 months of age
- 18+ months of age
- No young wombats present

Please provide any further details or comments about individual variations to the diet that do not apply to the above questions. (For example, diet differences due to gender, medical conditions, etc.).
Feeding Behaviours

How are the wombats fed?

- [ ] In a group
- [ ] Individually
- [ ] Both
- [ ] Other – please specify: __________________________________________

If wombats are fed in a group context, what feeding behaviours are observed to occur? Please select all that apply.

- [ ] Feeding dominance
- [ ] Older individuals feeding first
- [ ] Younger individuals feeding first
- [ ] Males feeding first
- [ ] Females feeding first
- [ ] None observed
- [ ] Other – please specify:
Are there opportunities for the wombats to consume matter in their enclosure that is not fed to them directly? (For example, are there grasses or other plant matter growing in the wombats’ enclosure that they may consume?)

- Yes
- No
- Unsure

Please give any further notes or comments regarding diet and feeding behaviours, if relevant. This may include any ‘favourite’ food items.

________________________________________________________________

Diet Reference Material

Where is information about wombat diet gained from? I.e. what references/resources are used in making decisions about wombat diet?

- Husbandry manual/s
- Published guide/s
- Advice from veterinarian
- Advice from animal nutritionist
- Online research
- Other – please specify: ________________________________________________
Over the past five years, have there been any changes made to wombat diet?

○ Yes

○ No

If yes, why have these changes been implemented?

Nutrition and Health

For what reason/s has the wombat/s seen a veterinary professional in the last 6 months?
How often do the wombats undergo a health check?

☐ Monthly

☐ Every 2 months

☐ Every 3 – 4 months

☐ Every 5 – 6 months

☐ Every 6 - 12 months

☐ Every 12+ months

☐ Upon admission to care

☐ Before being released into the wild

__________________________________________________________________________________________

Have any of the wombats ever been diagnosed with a nutritional or gastrointestinal disorder/disease OR a dental disorder/disease by a veterinarian?

☐ Yes

☐ No

__________________________________________________________________________________________
If yes, please select any of the following that apply to the nutritional disorder/disease:

- [ ] Nutrient/vitamin deficiency
- [ ] Nutrient/vitamin toxicity
- [ ] Copper toxicity
- [ ] Lactose excess/intolerance
- [ ] Poor body condition observed
- [ ] Irregular faeces/diarrhoea occurred
- [ ] Weight loss observed
- [ ] Bloating observed
- [ ] Overgrowth of teeth due to insufficient tooth wear
- [ ] Malocclusion (overbite) or other teeth alignment issues
- [ ] Impaired feeding ability observed
- [ ] Mouth injury
- [ ] Mouth infection
- [ ] Other – please specify: ________________________________________________
If yes, what actions or treatment were taken? Please select all that apply.

☐ Change in diet – permanent

☐ Change in diet – temporary

☐ Medication

☐ Vitamin/mineral supplements

☐ Surgical procedure

☐ Other - please specify: ________________________________________________

Q43 Please add any other information that you can provide regarding diet.

________________________________________

________________________________________
Appendix 3 - Diet information table distributed to all survey respondents

Diet information table

Please complete the following table regarding feed items and quantities supplied to adult wombats. If necessary, extend table to accommodate all feed items in the diet. See below for additional notes on completing the table.

<table>
<thead>
<tr>
<th>Feed item and brief description*</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

Further instructions:

If amounts of items do not vary from day to day, please indicate this by writing “DAILY”. If this is not the case, please complete each individual day column in the table.

Please be as detailed and specific as possible when completing this table. However, if amounts or feeding schedule are not known, please simply complete the table to the best of your ability. For example, if you cannot fully complete the table, you may choose to complete the “food item” column and write an estimate of how many times a week the wombats are fed this food item.

* Please be as specific as possible when specifying feed items, e.g. if grass feed, please specify species where known. For any purchased food mixtures or items, please provide the product name, supplier details and form (e.g. pellets). When giving a “brief description” of the food item, for items such as fruit or vegetables, this may include how coarsely/finely it is chopped, while for grasses, hay, etc. this may include whether these items are given in a bale, broken up, and how finely they are chopped.

** Please provide weight of feed item where possible. If this is not possible, please describe the amount in standard quantities, e.g. 3 carrots, 2 bales.
<table>
<thead>
<tr>
<th>Facility</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mixture of wheat grass, spear grass and weeping grass (shopping bag full); Homebrand® rolled oats 375grams</td>
<td>Mixture of wheat grass, spear grass and weeping grass (shopping bag full); EasiFeed OldTimer Four® horse feed 1 scoop</td>
<td>Mixture of wheat grass, spear grass and weeping grass (shopping bag full)</td>
<td>Mixture of wheat grass, spear grass and weeping grass (shopping bag full); EasiFeed OldTimer Four® Rolled Oats 375grams</td>
<td>Mixture of wheat grass, spear grass and weeping grass (shopping bag full); Homebrand® OldTimer Four® horse feed 1 scoop</td>
<td>Mixture of wheat grass, spear grass and weeping grass (shopping bag full)</td>
<td>Observed malocclusion in wombats and teeth grinding response</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Grass</td>
<td>Grass</td>
<td>Grass</td>
<td>Grass</td>
<td>Grass</td>
<td>Grass</td>
<td>Grass</td>
<td>Carrot, sweet potato, rolled oats given as an occasional treat; Observed worms, teething issues, dwarfism, gastric upset</td>
</tr>
<tr>
<td>3</td>
<td>Black and Gold® rolled oats 180g; Sanitarium® Weetbix 1 bar; Vegetables (120g sweet potato); Freshly picked grass: Poa spp. and green grasses including roots and soil*</td>
<td>Black and Gold® rolled oats 180g; Sanitarium® Weetbix 1 bar; Vegetables (120g corn kernels); Freshly picked grass: Poa spp. and green grasses including roots and soil*</td>
<td>Black and Gold® rolled oats 180g; Sanitarium® Weetbix 1 bar; Vegetables (120g sweet potato); Freshly picked grass: Poa spp. and green grasses including roots and soil*</td>
<td>Black and Gold® rolled oats 180g; Sanitarium® Weetbix 1 bar; Vegetables (120g corn kernels); Freshly picked grass: Poa spp. and green grasses including roots and soil*</td>
<td>Black and Gold® rolled oats 180g; Sanitarium® Weetbix 1 bar; Vegetables (120g sweet potato); Freshly picked grass: Poa spp. and green grasses including roots and soil*</td>
<td>Black and Gold® rolled oats 180g; Sanitarium® Weetbix 1 bar; Vegetables (120g corn kernels); Freshly picked grass: Poa spp. and green grasses including roots and soil*</td>
<td>*Equivalent of 1 standard stock feed bag (average chook, horse, sheep, etc. feed bag size). Half offered at 9am, half offered at 4pm.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Macropod pellets (300gms per wombat); 1/2 a carrot; 1 cob of</td>
<td>Macropod pellets (300gms per wombat); 1/2 a carrot; Sweet</td>
<td>Macropod pellets (300gms per wombat); 1/2 a carrot; Sweet</td>
<td>Macropod pellets (300gms per wombat); 1/2 a carrot; Sweet</td>
<td>Macropod pellets (300gms per wombat); 1/2 a carrot; Sweet</td>
<td>Macropod pellets (300gms per wombat); 1/2 a carrot; 1 cob of</td>
<td>*The Display SHNWs are not fed carrots daily due to one wombat’s</td>
<td></td>
</tr>
</tbody>
</table>
carrot. Freshly picked grass daily.
corn (husk removed). Freshly picked grass daily.
carrot. Freshly picked grass daily.
potato (approx. same amount to carrots). Freshly picked grass daily.
carrot. Freshly picked grass daily.
corn (husk removed). Freshly picked grass daily.

obesity issues, and to help it cope with bad hips. They can be offered one carrot occasionally as an enrichment treat.

Diet used for SHNW and BNW

5
1 large carrot, chopped into 4 pieces; 2cm piece of corn on the cob; 3x3cm piece of sweet potato; *lucerne chaff 22g roughly ¼ cup; *Barastoc® kangaroo & wallaby pellets 386g; *maize 54g; 4 cups fresh picked grass (unknown species grows on property); 1 large handful grass hay.

6
Rolled oats 110g; Hygain® equine senior 68g; sunflower seeds 2tbsp (~14g); Barastoc® calm performer pellets 132g; 1 x corn cob,
Rolled oats 110g; Hygain® equine senior 68g; sunflower seeds 2tbsp (~14g); Barastoc® calm performer pellets 132g; 1 x corn cob,
Rolled oats 110g; Hygain® equine senior 68g; sunflower seeds 2tbsp (~14g); Barastoc® calm performer pellets 132g; 1 x corn cob,
Rolled oats 110g; Hygain® equine senior 68g; sunflower seeds 2tbsp (~14g); Barastoc® calm performer pellets 132g; 1 x corn cob,
Rolled oats 110g; Hygain® equine senior 68g; sunflower seeds 2tbsp (~14g); Barastoc® calm performer pellets 132g; 1 x corn cob,
Rolled oats 110g; Hygain® equine senior 68g; sunflower seeds 2tbsp (~14g); Barastoc® calm performer pellets 132g; 1 x corn cob,

* Fed together in one bowl.
Wombats are fed 2 x per day, however what is fed in AM and PM is randomly assigned.

Grasses fed daily – ad lib for SHNW as is growing in enclosures. Large handful given to BNW as is minimal grass growing in enclosures, usually
| 7 | BNW | 1 cup of wallaby pellets (Barastoc®); ½ cup crushed maize (Pro-Vit-Min®); 3 cups of chopped vegetables (corn, pumpkin, broccoli, cauliflower and sweet potato); 3 cups of chopped carrot; 1 handful of grass found locally | 1 cup of wallaby pellets (Barastoc®); ½ cup crushed maize (Pro-Vit-Min®); 3 cups of chopped vegetables (corn, pumpkin, broccoli, cauliflower and sweet potato); 3 cups of chopped carrot; 1 handful of grass found locally | 1 cup of wallaby pellets (Barastoc®); ½ cup crushed maize (Pro-Vit-Min®); 3 cups of chopped vegetables (corn, pumpkin, broccoli, cauliflower and sweet potato); 3 cups of chopped carrot; 1 handful of grass found locally | 1 cup of wallaby pellets (Barastoc®); ½ cup crushed maize (Pro-Vit-Min®); 3 cups of chopped vegetables (corn, pumpkin, broccoli, cauliflower and sweet potato); 3 cups of chopped carrot; 1 handful of grass found locally | 1 cup of wallaby pellets (Barastoc®); ½ cup crushed maize (Pro-Vit-Min®); 3 cups of chopped vegetables (corn, pumpkin, broccoli, cauliflower and sweet potato); 3 cups of chopped carrot; 1 handful of grass found locally | 1 cup of wallaby pellets (Barastoc®); ½ cup crushed maize (Pro-Vit-Min®); 3 cups of chopped vegetables (corn, pumpkin, broccoli, cauliflower and sweet potato); 3 cups of chopped carrot; 1 handful of grass found locally | 1 cup of wallaby pellets (Barastoc®); ½ cup crushed maize (Pro-Vit-Min®); 3 cups of chopped vegetables (corn, pumpkin, broccoli, cauliflower and sweet potato); 3 cups of chopped carrot; 1 handful of grass found locally | in pm; Hay (prime) - 1 to 2 large handfuls given approx. once a fortnight, usually in PM. Dental work every 5-6 months, due to overgrowth of teeth and malocclusion/other teeth alignment issues | 1 cob of corn. Used for training - cut up into 7 pieces and given across the week; ¼ - ½ cup of frozen corn for training. |
| 7 | SHNW | ½ cup of wallaby pellets (Barastoc®); crushed maize (Pro-Vit-Min®); wheat (Oxley Feed Mill®); 2 cups of carrot; 1 handful of grass found locally; 1 cup of chopped vegetables (corn, pumpkin, broccoli, cauliflower and sweet potato) |
| 8 | Lucerne Chaff | 1 cup; Barastoc® ½ cup; Calm Pellets 1 cup; Sweet potato 300 – 500g chunks, not cut; Carrot ½; Apple ½; Corn ½ cup kernels off the cob; Grass Large clump* |
|   | BNW | 1 ½ cups macropod pellets; ½ cup gumnuts; ½ cob corn and 1 medium carrot; ¼ biscuit of Rhodes hay to each wombat (fed in PM) |

For enrichment so maybe once or twice per week. ¼ cup of large parrot seed (Pro-Vit-Min®) used in enrichment maybe once or twice per week. 1-2 tbsp of honey used in enrichment maybe once or twice per week.

Chaff, pellets and Barastoc® come from local supplier, brand varies depending on availability. * Picked on site, fed out in the afternoon.
| 9 SHNW | 1 cups macropod pellets; 1 cup gumnuts; ½ cob corn and 1 medium carrot each; ¼ biscuit of Rhodes hay to each wombat (fed in PM) | 1 ½ cups macropod pellets; ½ cup gumnuts; 5 snow peas chopped up about 1 cm width and 1 medium carrot | 1 ½ cups macropod pellets; ½ cup gumnuts; ½ cob corn and grated pumpkin to fit on a corn husk each; cardboard box | 1 ½ cups macropod pellets; ½ cup gumnuts; 1 medium carrot; 2 snow peas chopped, and grated pumpkin to fit on a corn husk each | 1 ½ cups macropod pellets; ½ cup gumnuts; 1 cup of sweet potato, chopped into cm cubes scattered through pellets; ¼ biscuit of Rhodes hay to each wombat (fed in PM) | 1 ½ cups macropod pellets; ½ cup gumnuts; small amount of pumpkin grated to fit on a corn husk each; 2 chopped snow peas and ½ medium carrot; Herb scent scatter |
Table S2. Nutritional composition (from Foster et al. 2009) of native grasses fed to wombats as identified by survey respondents

<table>
<thead>
<tr>
<th>Common name</th>
<th>Scientific name</th>
<th>Dry matter %</th>
<th>ME MJ/kg%</th>
<th>Crude protein %</th>
<th>Nitrogen %</th>
<th>Fat %</th>
<th>Carbohydrate %</th>
<th>ADF %</th>
<th>NDF %</th>
<th>Ca mg/100g</th>
<th>P mg/100g</th>
<th>K mg/100g</th>
<th>Fe mg/100g</th>
<th>Na mg/100g</th>
<th>Zn mg/100g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weeping rice grass&lt;sup&gt;a&lt;/sup&gt;</td>
<td><em>Microlaena stipoides</em></td>
<td>32.2</td>
<td>10.6</td>
<td>20.4</td>
<td>3.3</td>
<td>2.8</td>
<td>10.4</td>
<td>24.7</td>
<td>49.8</td>
<td>579</td>
<td>238</td>
<td>2120</td>
<td>11</td>
<td>162</td>
<td>9</td>
</tr>
<tr>
<td>Wheatgrass&lt;sup&gt;a&lt;/sup&gt;</td>
<td><em>Elymus scaber</em></td>
<td>38.3</td>
<td>7.4</td>
<td>10.0</td>
<td>1.6</td>
<td>2.6</td>
<td>12.6</td>
<td>33.9</td>
<td>60.9</td>
<td>440</td>
<td>201</td>
<td>1780</td>
<td>10</td>
<td>43</td>
<td>10</td>
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<tr>
<td>Elegant speargrass</td>
<td><em>Austrostipa elegantissima</em></td>
<td>51.1</td>
<td>4.5</td>
<td>11.1</td>
<td>1.8</td>
<td>2.1</td>
<td>1.4</td>
<td>74.3</td>
<td>221</td>
<td>107</td>
<td>1000</td>
<td>24</td>
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<td>Speargrass</td>
<td><em>Austrostipa nodosa</em></td>
<td>42.7</td>
<td>6.6</td>
<td>10.6</td>
<td>1.7</td>
<td>2.0</td>
<td>1.5</td>
<td>72.8</td>
<td>462</td>
<td>97</td>
<td>1190</td>
<td>31</td>
<td>26</td>
<td>1.7</td>
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<td>Desert speargrass</td>
<td><em>Austrostipa eremophila</em></td>
<td>48.0</td>
<td>7.5</td>
<td>14.3</td>
<td>2.3</td>
<td>3.1</td>
<td>4.6</td>
<td>64.1</td>
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</table>

All values are reported as a dry matter basis, ME- metabolisable energy, ADF- acid detergent fibre, NDF- neutral detergent fibre; <sup>a</sup> identified in free-ranging wombat diets (Evans et al. 2006)
<table>
<thead>
<tr>
<th>Food</th>
<th>Energy MJ/kg</th>
<th>Moisture %</th>
<th>Protein %</th>
<th>Total fat %</th>
<th>Carbohydrates %</th>
<th>Starch %</th>
<th>Dietary fibre %</th>
<th>Ca mg/100g</th>
<th>P mg/100g</th>
<th>Fe mg/100g</th>
<th>Mg mg/100g</th>
<th>K mg/100g</th>
<th>Na mg/100g</th>
<th>Zn mg/100g</th>
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</thead>
<tbody>
<tr>
<td>Fruit and vegetables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apple (granny-smith, unpeeled)</td>
<td>2.02</td>
<td>85.2</td>
<td>0.3</td>
<td>0</td>
<td>10.8</td>
<td>0.2</td>
<td>2.3</td>
<td>5</td>
<td>9</td>
<td>0.16</td>
<td>4</td>
<td>108</td>
<td>1</td>
<td>0.07</td>
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<tr>
<td>Apple (red delicious, unpeeled)</td>
<td>2.48</td>
<td>84.5</td>
<td>0.3</td>
<td>0</td>
<td>13.8</td>
<td>0.5</td>
<td>2.3</td>
<td>5</td>
<td>9</td>
<td>0.16</td>
<td>4</td>
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<td>0</td>
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<td>32</td>
<td>75</td>
<td>0.84</td>
<td>21</td>
<td>336</td>
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<td>4</td>
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<td>0.27</td>
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<td>Corn kernels</td>
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<td>13.8</td>
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<td>Corn on cob</td>
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<td>75.9</td>
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<td>9</td>
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<td>Pear (brown, unpeeled)</td>
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<td>Pumpkin (butternut, peeled)</td>
<td>1.89</td>
<td>85</td>
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<td>6.9</td>
<td>1.7</td>
<td>1.8</td>
<td>18</td>
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<td>1.24</td>
<td>91.3</td>
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<td>4</td>
<td>1.4</td>
<td>1.1</td>
<td>22</td>
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<td>230</td>
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<td>Pumpkin (jarrahdale, peeled)</td>
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<td>90.5</td>
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<td>5.2</td>
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<td>16</td>
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<td>8.4</td>
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<td>41</td>
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<td>420</td>
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<td>Sweet potato (orange flesh)</td>
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<td>78.7</td>
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<td>0.1</td>
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<td>8.5</td>
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<td>27</td>
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<tr>
<td>Sweet potato (white flesh)</td>
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<tr>
<td>Rolled oats</td>
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<td>54.5</td>
<td>53.5</td>
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<td>38</td>
<td>340</td>
<td>3.5</td>
<td>100</td>
<td>310</td>
<td>2</td>
<td>2.3</td>
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<td>26.8</td>
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<td>0.2</td>
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<td>840</td>
<td>4.6</td>
<td>370</td>
<td>460</td>
<td>0</td>
<td>5.82</td>
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<td>2.2</td>
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<td>60.9</td>
<td>11</td>
<td>31</td>
<td>290</td>
<td>14</td>
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<td>350</td>
<td>300</td>
<td>6.5</td>
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<td><strong>Treat items</strong></td>
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<td>Honey</td>
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<td>82.1</td>
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<td>3</td>
<td>0.2</td>
<td>3</td>
<td>62</td>
<td>14</td>
<td>2.6</td>
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<td>*Gingernut biscuit</td>
<td>2.34</td>
<td>6</td>
<td>10</td>
<td>77</td>
<td>2.2</td>
<td>19</td>
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<td>540</td>
<td>346</td>
<td>501</td>
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<tr>
<td>*Peanuts (with skin, unsalted)</td>
<td>23.76</td>
<td>4.8</td>
<td>24.7</td>
<td>47.1</td>
<td>8.9</td>
<td>3.8</td>
<td>8.2</td>
<td>54</td>
<td>370</td>
<td>2.3</td>
<td>160</td>
<td>540</td>
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<td>3</td>
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<tr>
<td>Peanut butter (added sugar and salt)</td>
<td>25.09</td>
<td>1.5</td>
<td>22.2</td>
<td>50</td>
<td>14.3</td>
<td>5.7</td>
<td>5.8</td>
<td>54</td>
<td>358</td>
<td>1.72</td>
<td>190</td>
<td>620</td>
<td>477</td>
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</tr>
<tr>
<td>Peanut butter (no added sugar or salt)</td>
<td>26.34</td>
<td>1.5</td>
<td>24.3</td>
<td>54.3</td>
<td>9.7</td>
<td>4.2</td>
<td>6.5</td>
<td>54</td>
<td>358</td>
<td>1.72</td>
<td>177</td>
<td>632</td>
<td>25</td>
<td>2.84</td>
</tr>
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</table>

*Items fed as very occasional treats to aid training/medicine intake.
Table S4. Nutrient composition of livestock feeds provided to bare-nosed and southern hairy-nosed wombats in captivity as identified by survey respondents

<table>
<thead>
<tr>
<th>Product</th>
<th>Energy</th>
<th>Protein</th>
<th>Fat</th>
<th>Carbohydrates</th>
<th>Starch</th>
<th>Crude fibre</th>
<th>Ca</th>
<th>P</th>
<th>Fe</th>
<th>Mg</th>
<th>K</th>
<th>Na</th>
<th>Zn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riverina macropod pellets</td>
<td>10</td>
<td>12</td>
<td>6</td>
<td>10000</td>
<td>50</td>
<td>40</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Wombaroo kangaroo pellets</td>
<td>9</td>
<td>14</td>
<td>5</td>
<td>10</td>
<td>22</td>
<td>40</td>
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<td>Quayle Milling’s Kangaroo &amp; Wallaby Pellets</td>
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<td>15</td>
<td>4.3</td>
<td>25000</td>
<td>600</td>
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<td>Barastoc Kangaroo and Wallaby Pellet</td>
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<td>3</td>
<td>15</td>
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<td>Hygain® Equine Senior</td>
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<td>7</td>
<td>14</td>
<td>11000</td>
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<tr>
<td>Barastoc® calm performer pellets</td>
<td>11.5</td>
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<td>4.25</td>
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<td>Easifeed OldTimer Four® horsefeed</td>
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<td>5.9</td>
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<td>9200</td>
<td>5800</td>
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<td>2700</td>
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<td>Mitavite® Gumnuts</td>
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<td>7</td>
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<td>1200</td>
<td>1000</td>
<td>190</td>
<td>5000</td>
<td>1200</td>
<td>5000</td>
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<td>Cracked corn (maize)</td>
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<td>6</td>
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<td></td>
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<tr>
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</tbody>
</table>

Energy presented as metabolizable energy; nutrient values presented as either minimum or maximum levels as per manufacturer specifications (Hy Gain Feeds Pty Ltd 2016; Mitavite 2018; Pryde's EasiFeed® 2020; Ridley 2018; Riverina (Australia) Pty Ltd. 2017; Wombaroo Food Products 2014)

References


