

# Research Briefing: Impacts of the proposed Carmichael Coal Mine Project on the Black-throated Finch (Southern)

## Introduction

In addition to contributing to global warming, the Carmichael coal mine will have a large negative impact on Australian biodiversity, particularly on the Black-throated Finch (Southern) (*Poephila cincta* ssp. *cincta*) (BTFS).

## Description of the Black-throated Finch (Southern)

There are two subspecies of Black-throated Finch: The southern Black-throated Finch and the northern Black-throated Finch. Of these only the southern Black-throated Finch is listed as endangered<sup>1</sup>. The southern Black-throated Finch is distinguished from the northern subspecies by its white rump<sup>2</sup>.



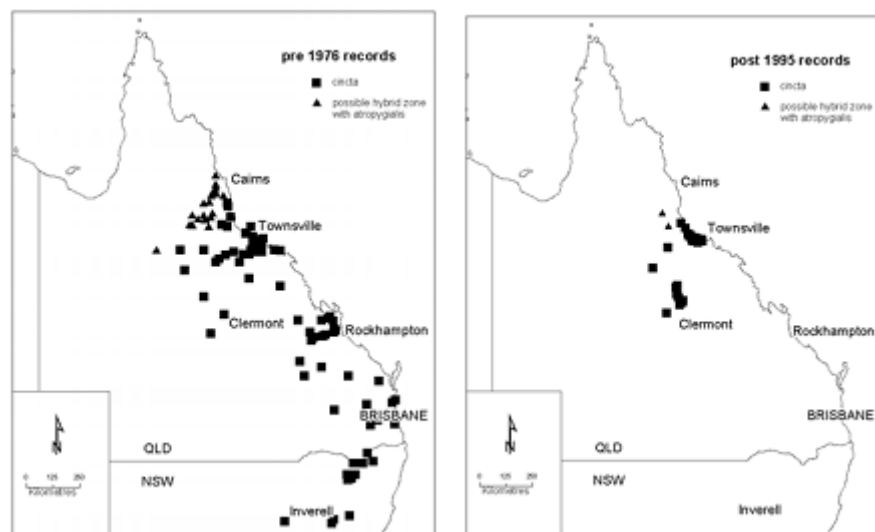
**Figure 1**  
A representative specimen of the black-throated finch (southern) Note the white rump distinctive of the southern subspecies.

## Decline of the finch

Since the early 1980s the range of the Black-throated Finch has declined by approximately 80% at the species level. The majority of this decline has occurred in the range of the southern subspecies<sup>3</sup>. The southern Black-throated Finch's range once extended from the town of Inverell NSW through eastern Queensland to Cairns in the north<sup>4</sup> (Fig 2).

The subspecies is now extinct at most sites south of the Burdekin River. It is confined to very few remaining 'pockets' of suitable habitat<sup>5</sup>. The total population of BTFS is estimated at less than 10 000<sup>6</sup> and its population decline is continuing<sup>7</sup>.

The largest known population is near Townsville and consists of no more than 600 birds. Poorly known sub-populations of the species in central Queensland are likely to consist of no more than 400 mature individuals each.<sup>8</sup>



**Figure 2**  
1976 distribution of the BTFS (left) compared to its 1995 distribution (right)

## Threats to the finch

Relevant threats to the Black-throated Finch (Southern) include<sup>9</sup>:

- Clearance and fragmentation of woodlands, river habitat and wattle shrublands
- Degradation of habitat by domestic livestock
- Invasion of habitat by exotic weeds, including exotic grasses.

## Conservation status of the finch

The BTFS is listed as 'Endangered' under the federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the *New South Wales Threatened Species Conservation Act 1995* (TSC Act) and the *Queensland Nature Conservation Act 1992* (NC Act).

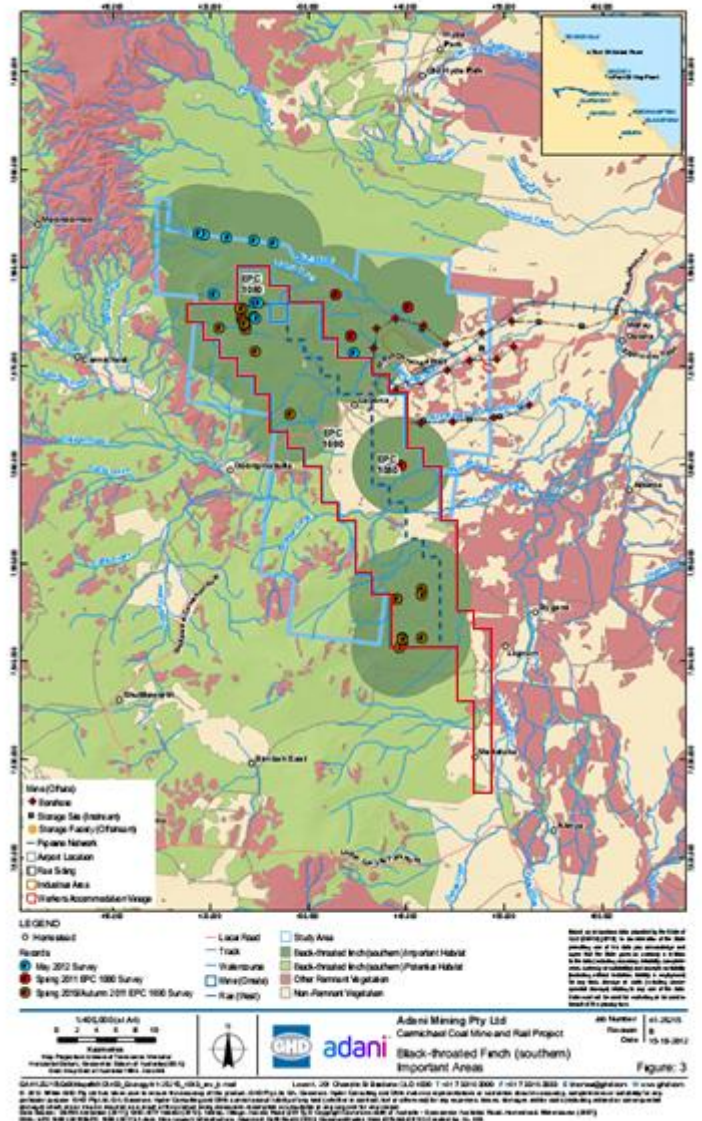
## The Finch and the Adani Carmichael Coal Mine Project

As part of the environmental impact assessment (EIS) process and Supplementary EIS for the proposed Carmichael mine GHD Pty Ltd (GHD) conducted surveys for the BTFS in 2011, 2012 and May 2013. These surveys identified large numbers of the Black-throated Finch (Southern) on the proposed mine site<sup>10</sup>.

In 2012 GHD ecologists sighted the bird 89 times on the mine site in 3 days. In 2013, a total of 208 black-throated finches were recorded from all surveys, and another 68 were photographed by camera traps. The birds were seen in flocks of 30 to 40 individuals and three nest sites were located<sup>11</sup>.

The map at right shows the proposed Carmichael mine, potential and important BTFS habitat taken from GHD Finch Report (2012):

- Potential habitat: Habitat which has the right vegetation to support the finch (**bright green**)
- Important habitat: habitat within five km of post-1995 sightings of BTFS (**dark green**)<sup>12</sup>
- The mine site (**bright red outline**).



## How significant is the onsite Finch Population?

The Black-throated Finch (Southern) population found on the site of the proposed Carmichael mine appears to be substantial and significant. According to CSIRO's *"The Action Plan for Australian Birds 2010"*<sup>13</sup> the largest known subpopulation, the Townsville subpopulation, consists of no more than 600 birds and poorly known subpopulations of the species in central Queensland are likely to consist of no more than 400 mature individuals each<sup>14</sup>. The onsite population is likely to form one of those poorly documented

subpopulations. Given that there is no data on how many of these central QLD subpopulations exist, the Carmichael subpopulation may be of key significance to the entire BTFS population.

## What will the impact of the Carmichael mine be on the BTFS population?

### Habitat Destruction

In the SEIS, Adani acknowledges that “the black-throated finch (southern) will be significantly impacted as a consequence of habitat losses due to vegetation clearing associated with the project” with the destruction of approximately 9,730 ha of BTFS habitat<sup>15</sup>. There will be indirect impacts on at least another 163 ha through subsidence due to underground mining<sup>16</sup>.

The SEIS reports that: “*Significant impacts to black-throated finch (southern) are predicted to occur as a result of the Project, as it is likely that the Project will:*

- *Lead to a long-term decrease in the size of an important population of a species*
- *Reduce the area of occupancy of an important population*
- *Adversely affect habitat critical to the survival of a species.*”<sup>17</sup>

In addition a large portion of the planned airport, industrial area and other infrastructure crucial to the mine are also planned in important habitat zones. GHD does not state the size of these areas or include them in their assessment of BTFS habitat destruction, however, a simple estimate based on project maps<sup>18</sup> suggests that these non-mine developments could destroy approximately 1900 ha of additional important habitat.

The onsite habitat is of high value to the finch, for a number of reasons:

- It is nearly pristine habitat<sup>19</sup>
- It contains a mix of anthropogenic and natural water sources important to the finch’s biological requirements
- Large continuous areas of potential habitat.<sup>20</sup>

### Habitat fragmentation

The scale of Carmichael will seriously fragment remaining black throated finch habitat. Habitat fragmentation is recognised as having major and insidious effects on species persistence<sup>21</sup>. The national recovery plan for the BTFS lists habitat fragmentation and invasive weeds (which are facilitated by habitat fragmentation) as key threatening factors to the BTFS.<sup>22</sup>

### Direct mortality

Depending on when the clearing occurs it is also possible that finches (particularly chicks) will be killed during clearance works.

### Cumulative impacts

Other areas of BTFS habitat in the Galilee Basin region are also threatened by proposed coal mine developments (such as GVK/Hancock’s Alpha Mine) these present a cumulative threat to the BTFS. For example, Hancock’s Alpha Mine project is clearing 7,936 ha of land marked as “High Potential BTFS impact areas”<sup>23</sup>.

## What is the legal status of the population?

A proponent must avoid impacting on matters of national significance, such as the endangered BTFS<sup>24</sup>. If there is no way to avoid impacting on a matter of national significance the proponent’s action requires approval from the Minister Environment.

If the Minister deems that a project will have an unacceptable impact on a matter of national significance he can refuse to grant an approval<sup>25</sup>.

In the case of the Carmichael coal mine Adani has no way of avoiding the impact on the BTFS as they are planning to mine directly beneath the BTFS habitat. As such the Minister will make a decision on whether or not approval can be given based, amongst other things, on whether the impacts can be “offset”.

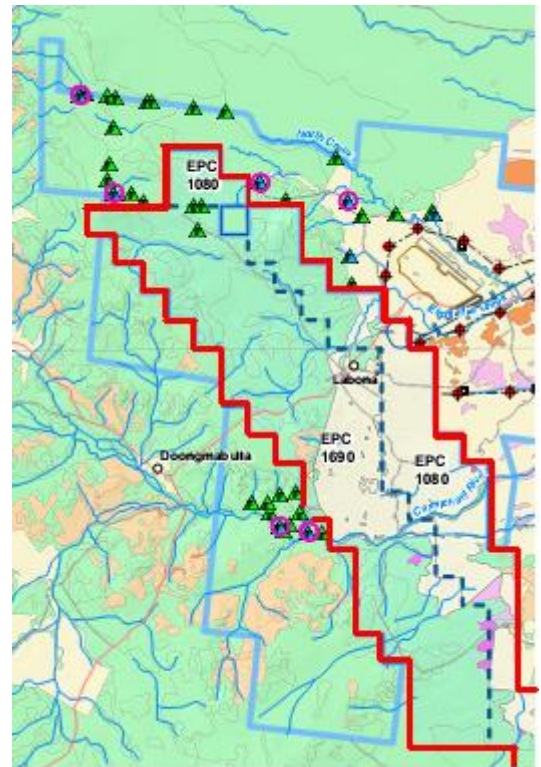
## Offsetting the destruction of finch habitat

The Minister can require that the impact of a project on a matter of national significance is mitigated via an appropriate offset<sup>26</sup>. There are specific requirements for offsets. Most importantly they must<sup>27</sup>:

- Improve or maintain the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action
- Account for and manage the risks of the offset not succeeding
- Be efficient, effective, timely, transparent, scientifically robust and reasonable.

Only if these requirements are met can the Minister deem the offset acceptable.

Adani is proposing to protect an unknown area<sup>28</sup> of land on five properties adjacent to the mine as an offset for the mine’s impacts on the BTFS. However, the BTFS has only been sighted on one of these properties and a field assessment of the suitability of habitat for BTFS in the proposed offset areas is yet to be undertaken.<sup>29</sup>



**Figure 3**  
The green triangles indicate points at which standardised 2ha searches for the black-throated finch were undertaken. These areas are being considered for offset by Adani

## References

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- <sup>1</sup> Department of Environment, Water, Heritage and the Arts (2009) Significant impact guidelines for the endangered black-throated finch (southern) (*Poephila cincta cincta*)  
<http://www.environment.gov.au/system/files/resources/41e7e5a7-bd14-45ed-8ef3-8b856d1af50a/files/black-throated-finch.pdf>
- <sup>2</sup> Department of Environment, Water, Heritage and the Arts (2009) Significant impact guidelines for the endangered black-throated finch (southern) (*Poephila cincta cincta*)
- <sup>3</sup> SEWPaC (2012). *Poephila cincta cincta* in Species Profile and Threats Database. Accessed Tue, 18 Dec 2012 via [http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon\\_id=64447](http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64447)
- <sup>4</sup> Black Throated Finch Recovery Team, Department of Environment and Climate Change (NSW) and Queensland Parks and Wildlife Service (BTF Recovery Team) (2007). National Recovery Plan for the Black-throated finch Southern Subspecies *Poephila cincta cincta*. Report to the Department of Environment and Water Resources, Canberra. Department of Environment and Climate Change (NSW), Hurstville and Queensland Parks and Wildlife Service, Brisbane.
- <sup>5</sup> SEWPaC (2012). *Poephila cincta cincta* in Species Profile and Threats Database. Accessed Tue, 18 Dec 2012 via [http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon\\_id=64447](http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64447)
- <sup>6</sup> Garnett, S.G., Szabo, J., and Dutson, G. (2011) 'The Action Plan for Australian Birds 2010 ' (CSIRO Publishing: Collingwood)
- <sup>7</sup> SEWPaC (2012). *Poephila cincta cincta* in Species Profile and Threats Database. Accessed Tue, 18 Dec 2012 via [http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon\\_id=64447](http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64447)
- <sup>8</sup> GHD (2012) Adani Carmichael Coal Mine Project EIS Appendix N1 Terrestrial Ecology Report  
Note secondary reference used due to not being able to access: Garnett, S.G., Szabo, J., and Dutson, G. (2011) 'The Action Plan for Australian Birds 2010 ' (CSIRO Publishing: Collingwood) at time of compiling this report.
- <sup>9</sup> SEWPaC (2012). *Poephila cincta cincta* in Species Profile and Threats Database. Accessed Tue, 18 Dec 2012 via [http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon\\_id=64447](http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64447)
- <sup>10</sup> GHD (2013) Report for Black-throated Finch On-site Monitoring Survey 1
- <sup>11</sup> GHD (2013) Report for Black-throated Finch On-site Monitoring Survey 1, Table 4.
- <sup>12</sup> Department of Environment, Water, Heritage and the Arts (2009) Significant impact guidelines for the endangered black-throated finch (southern) (*Poephila cincta cincta*)
- <sup>13</sup> Garnett, S.G., Szabo, J., and Dutson, G. (2011) 'The Action Plan for Australian Birds 2010 ' (CSIRO Publishing: Collingwood)
- <sup>14</sup> Garnett, S.G., Szabo, J., and Dutson, G. (2011) 'The Action Plan for Australian Birds 2010 ' (CSIRO Publishing: Collingwood)
- <sup>15</sup> GHD (2013) SEIS Appendix H, Report for Matters of National Environmental Significance, p.vii
- <sup>16</sup> GHD (2013) SEIS Appendix H, Report for Matters of National Environmental Significance, Table 14, p.121
- <sup>17</sup> GHD (2013) SEIS Appendix H, Report for Matters of National Environmental Significance, p.131
- <sup>18</sup> GHD (2012) Adani Carmichael Coal Mine Project EIS Appendix N3 Black Throated Finch Report
- <sup>19</sup> GHD (2012) Adani Carmichael Coal Mine Project EIS Appendix N3 Black Throated Finch Report

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<sup>20</sup> Black Throated Finch Recovery Team, Department of Environment and Climate Change (NSW) and Queensland Parks and Wildlife Service (BTF Recovery Team) (2007). National Recovery Plan for the Black-throated finch Southern Subspecies *Poephila cincta cincta*. Report to the Department of Environment and Water Resources, Canberra. Department of Environment and Climate Change (NSW), Hurstville and Queensland Parks and Wildlife Service, Brisbane.

<sup>21</sup> Ewers RM & Didham RK (2006) Confounding factors in the detection of species responses to habitat fragmentation *Biological Reviews* **81** 117-142

<sup>22</sup> Black-throated Finch Recovery Team, Department of Environment and Climate Change (NSW) and Queensland Parks and Wildlife Service. 2007. National recovery plan for the black-throated finch southern subspecies *Poephila cincta cincta*. Report to the Department of the Environment and Water Resources, Canberra. Department of Environment and Climate Change (NSW), Hurstville and Queensland Parks and Wildlife Service, Brisbane.

<sup>23</sup> EcoLogical Australia (2012) Alpha Coal Project Biodiversity Offset strategy

<sup>24</sup> SeWPAC (2012) Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy

<sup>25</sup> SeWPAC (2012) Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy

<sup>26</sup> SeWPAC (2012) Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy

<sup>27</sup> SeWPAC (2012) Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy

<sup>28</sup> A total of 54,082ha of potential offset area for the BTFS has been identified through desk-top assessments, but it is not clear how much of this will eventually be protected.

<sup>29</sup> SEIS Appendix F Environmental Offset Package