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保育類野生動物產製品消費傾向調查研究
Consumers' Attitude on the Protected Wildlife Species Products
– Tiger, Bears, Rhinos and Turtles

委託單位：行政院農業委員會林務局

執行單位：中華民國自然生態保育協會台北野生物貿易研究委員會

研究主持人：李玲玲

研究人員：吳郁琪

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台灣民眾的保育類野生動物產製品消費傾向

**Consumers' Attitude on the Consumption of Protect Wild Animals Products in
Taiwan**

「保育類野生動物產製品消費傾向調查研究」
行政院農業委員會 林務局 99 年度委託研究計畫

台北野生物貿易研究委員會

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台灣民眾的保育類野生動物產製品消費傾向

摘要

台灣自 1989 年施行《野生動物保育法》以來，在有效執法、以及廣泛的保育宣導與教育之下，20 年前當街可見殺虎、中藥店普遍展售犀牛角與熊膽的情形已不復見。雖然非法野生動物貿易的整體情況已有重大改進，然而不時仍可發現一些走私或非法販售保育類物種的狀況，有時違法情節還頗具規模，或涉及瀕危物種。這可能肇因於消費大眾對於瀕危物種使用仍有需求，消費市場仍然存在有關。

為系統性地瞭解台灣的一般大眾對於虎、熊、犀牛或龜鱉類保育動物產製品使用的意向、緣由，以及保育觀念及對保育法規的認知，本研究採電腦輔助電話訪問系統「CATI」，以虎、熊、犀牛、龜鱉為調查範圍，詢問民眾對這些保育類野生動物製成的中藥品及家飾品的消費行為及消費意願，並進一步瞭解台灣民眾的保育認知及用藥觀念。

根據研究結果顯示，比較中藥或家飾品的使用方式，受訪者對於虎、熊、犀牛或龜鱉動物產製品的使用傾向於以中藥用為目的。曾經購買與未來有意購買虎、熊、犀牛或龜鱉動物製成的家飾品分別只佔受訪者的 0.1%與 0.5%。

受訪者多數亦未曾購買由虎、熊、犀牛或龜鱉動物製成的中藥材（96.3%），且未來也不考慮購買（96.3%）。在極少數具購買虎、熊、犀牛或龜鱉動物製成的中藥材經驗的消費者中（3.7%），購買動機以「覺得治療效果較好」的比例最高，其次為「好奇嘗試」；而未來有消費意願的受訪者中，以「覺得治療效果可能較好」的比例為最高，顯示保育類野生動物製成的中藥材「可能存在的藥效」是吸引消費者的重要因素。無論是否有購買經驗與意願，受訪者對於使用替代品採支持的態度（80%）。過去購買經驗與未來購買意願與性別、年齡、教育程度皆無顯著關係。

在保育觀念方面，九成以上的受訪者認為使用保育類動物的製品會對物種生存、地球生態、台灣國際形象造成影響，且認為保護這些物種是重要的。受訪者認為棲息地遭受嚴重破壞及改變是虎、熊、犀牛、龜鱉動物當前面臨最主要的問題，其次為國人喜歡吃或使用野生動物產製品。

進一步分析曾經購買虎、熊、犀牛或龜鱉產製品、或未來有購買意願者，除棲息地遭受嚴重破壞及改變外，認為民眾不守法、缺乏專門負責的機關、教育宣導工作不足是大問題。此可能肇因於民眾認為造成這些物種瀕危的主要原因為棲息地遭受破壞，個人消費習慣對野生動物的生存不致造成重大影響。這也是目前許多

環境問題的所在，民眾雖具有正確的觀念，但對本身行為可能對環境造成影響的連結仍然薄弱，此方面應是未來教育宣導方面需加強之重點。

台灣民眾多數透過電視接受野生動物的相關資訊（68.7%），其次為網路（13.2%）。此顯示民眾傾向被動式的由電視「餵食」資訊，僅少數受訪者會主動搜尋相關資訊，建議政府、保育團體、學校應持續地進行教育宣導，避免民眾主動蒐集資訊習慣養成之前，出現保育觀念的落差。

本研究以台灣、澎湖、金門與馬祖地區的民眾為研究範圍，由於電話問卷調查需要，問題設計需顧及使用語彙簡短、清晰、易懂，避免繞口、冗長或需要另加定義的字眼。對於某些法規或保育的細節無法於問卷題目中一一陳述，僅能以相對比較性問題或詞彙的描述。在此籲請讀者就解讀問卷的用字遣詞時，請以一般民眾角度視之，而非主管機關或法律、保育專業人員之角度。

中文關鍵字：

虎、熊、犀牛、龜鱉類、保育類、CITES、中藥、家飾藝品、消費者傾向

英文關鍵字：

Tiger、bear、rhinoceros、turtle and tortoise (include soft-shell turtle)、protected species、CITES、traditional Chinese medicine、curio、consumer attitude

前言

台灣自 1989 年訂定野生動物保育法至今，已施行 20 餘年之久。為落實野生動物保育法之執行，行政院農業委員會透過專業訓練提升縣（市）政府之執法能力，並於 13 個縣（市）政府成立執行保育工作的專責單位。

在主管及執法機關的努力下，透過辦理保育類野生動物及其產製品之登註記、查核與執行查察、取締違反野生動物保育法案件之各項工作等，過去當街宰殺販售保育類野生動物的情景不復常見。如今在台灣野生動物貿易多已轉型為使用較不瀕危的物種，且有許多是來自於人工繁殖的個體，用途也轉成觀賞或寵物。除了法制面的努力，同時以全民為對象，加強野生動物保育法相關規定進行教育宣導，並建立民眾正確的保育觀念。在法制及教育同步進行下，台灣民眾的保育觀念已有長足的進步。

然而，經過一些訪查及查緝案顯示，仍有不少個案消費保育類野生動物產製品，2002 年，國際保育組織 WSPA 進行全球非法熊膽製品貿易調查，調查人員走訪全台 201 家中藥商，發現約 30.4% 的中藥商持續販賣熊膽產製品，保守估計全台灣約有 3,000 家中藥商有熊膽產製品的交易行為；2006 年 8 月，金門海巡隊查獲大批從台灣捕捉，準備走私到大陸的淡水龜；2007 年 6 月，台北關稅局查獲未取具主管機關許可輸入之疑似保育類犀牛角 1 支；2010 年 7 月，查緝餐廳業者捕殺台灣的熊，或走私進口熊掌，舉辦「熊掌宴」，此些不僅危害保育類野生動物的生存，也重挫台灣的國際形象。

本會亦於 2009 年 8-9 月對零售中藥店與家飾藝品店進行訪查研究以瞭解台灣的中藥與家飾藝品零售商對於老虎等保育類製品的態度。訪查研究結果顯示，4% 的受訪中藥商表示有虎骨製藥品可供應；另外，也有店家表示有顧客私自攜帶購自中國大陸的虎鞭要求鑑定。在沒有實驗室鑑定、以及偽品充斥市場的前提下，也許很難確認這些製品的真偽，但無論真品或偽品，這些買賣、供應與自行帶貨已經顯示台灣仍有老虎等瀕危保育類的消費市場存在。

為了直接瞭解台灣一般消費大眾對於保育類野生動物產製品的消費行為及保育類野生動物產製品的潛在消費者，本調查以系統性的方式瞭解台灣地區消費者對於保育類動物產製品使用的消費意向、緣由，以及一般大眾的保育觀念及對保育法規的認知，藉以找出關鍵族群，以其能瞭解的方式與資訊做有效宣導。

由於野生動物產製品的多樣性，使用目的與原因差異甚大，為顧及問卷的有效性和受訪者可忍受的受訪時間與問題複雜度，本問卷研究將以在台灣曾有或仍舊繼續有使用族群的藥用野生動物虎、熊、犀牛與龜鱉類為研究主題物種。又因欲進

一步確認台灣民眾對研究主題虎、熊、犀牛與龜鱉物種的使用方式與原因是否從傳統的藥用轉變成與周邊國家一樣新近出現的裝飾玩賞用，因此加入家飾藝品使用經驗的調查研究。其他的物種與使用方式，如活體寵物鸚鵡或爬蟲類皮件製品，不在本計畫的研究與討論範圍。

研究方法

本次調查內容分為兩大部分，其一為瞭解民眾對保育類野生動物的消費行為及消費意願，調查內容以虎、熊、犀牛、龜鱉為調查範圍，詢問民眾對這些保育類野生動物中藥品，如：虎骨膠、虎骨酒、虎骨藥布貼片、熊膽粉、熊膽汁、犀牛角（粉）、龜鹿二仙膠、龜苓膏等，及家飾品，如：虎皮地毯、犀牛角飾品等的消費經驗及未來消費意願；其二，瞭解台灣民眾的保育及用藥觀念。

本次調查對象以台灣地區為調查範圍，包括台灣省 21 縣市、台北市、高雄市、金門縣、連江縣，共計 25 個縣市，年滿 20 歲以上成年人。本次調查目的為瞭解一般民眾對保育類野生動物的相關認知，並進一步比對不同消費經驗或未來消費意願的受訪者，其對中醫藥及保育觀念有無差異，因此在調查過程中排除從事中醫藥相關行業及從事野生動物保育的相關工作者，避免產生偏誤。調查方法採用電腦輔助電話訪問系統「CATI」（Computer Assisted Telephone Interview System, CATI System）來進行訪問。採取電話訪問之原因有三，其一為在有限的資源下，可獲取較大的樣本數；其二，電話訪問的匿名性高，適用於敏感性問題，降低受訪者對敏感議題的拒訪率；其三，透過 CATI 可設計題目隨機輪替，降低受訪者回覆問題的偏差。

此外，在顧及品質及效率考量因素下，CATI 系統可將訪問過程標準化，舉凡題目順序、跳題追問等，訪員只需要依照螢幕上的指示撥號及訪問，根據受訪者的回答點選答案，訪問完成後資料直接存入電腦，減低建檔錯誤的機會以及確保調查品質。

在抽樣規劃方面，本調查為求台灣地區全體之推論及分析，故採「分層隨機抽樣法」，依縣市別進行分層，共分為 25 層，樣本數較少之縣市增補至 30¹層，其餘縣市則按母體比例分配。此外，基於每個受訪者中選機率相同的基礎下，依據電腦內建的「台閩地區各鄉鎮市區電話號碼局區碼表」進行分層隨機抽樣。首先依據某鄉鎮市區 20 歲以上人口比例隨機抽出適當數量的電話前三碼或前四碼（如台北市大安區前四碼有 2325、2755...等），第二步再將所有抽出之電話前 4 碼以隨機亂碼方式產生後 4 碼。此種抽樣方法能涵

¹ 增補地區包括宜蘭縣、新竹縣、苗栗縣、南投縣、雲林縣、嘉義縣、台東縣、花蓮縣、澎湖縣、基隆市、新竹市、嘉義市、台南市、金門縣、連江縣。

蓋台灣地區所有電話住宅用戶，以有效克服利用電話號碼簿抽樣涵蓋率不足的缺點。

本調查於 2010 年 7 月 22 日至 8 月 3 日之間執行，在 9 天的訪問場次之中（不含假日），共計完成 1,131 份有效樣本，以 95%信賴度估計，抽樣誤差在±2.91%之內。

調查結束後，針對縣市層、性別層及年齡層進行樣本代表性檢定，以確定樣本之結構與母體相符，若無法達到，則採多變數反覆加權之方式，依據地區、性別、年齡的順序逐項加權，使樣本結構與母體結構相符。經多變數反覆加權後，樣本結構如下：

表 一、性別樣本檢定（加權後）

性別	樣本		母體	檢定結果
	人數	百分比	百分比	
男性	565	50.0	49.7	P>0.05 樣本與母體一致
女性	566	50.0	50.3	
合計	1131	100.0	100.0	

表 b、年齡樣本檢定（加權後）

年齡	樣本		母體	檢定結果
	人數	百分比	百分比	
20 至 29 歲	223	19.7	19.7	P>0.05 樣本與母體一致
30 至 39 歲	241	21.3	21.3	
40 至 49 歲	239	21.1	21.1	
50 至 59 歲	210	18.6	18.6	
60 歲及以上	218	19.3	19.3	
合計	1131	100.0	100.0	

表 c、縣市樣本檢定（加權後）

縣市	樣本		母體	縣市	樣本		母體	檢定結果
	(人)	(%)	(%)		(人)	(%)	(%)	
台北縣	186	16.5	16.9	台東縣	13	1.2	1.0	P>0.05 樣本與母體一 致
宜蘭縣	22	1.9	2.0	花蓮縣	16	1.4	1.5	
桃園縣	90	8.0	8.3	澎湖縣	7	0.6	0.4	
新竹縣	22	2.0	2.1	基隆市	21	1.9	1.7	
苗栗縣	26	2.3	2.4	新竹市	22	1.9	1.7	
台中縣	72	6.3	6.6	台中市	51	4.5	4.5	
彰化縣	64	5.6	5.6	嘉義市	14	1.2	1.2	
南投縣	26	2.3	2.3	台南市	38	3.3	3.3	
雲林縣	33	3.0	3.2	台北市	140	12.3	11.5	
嘉義縣	26	2.3	2.4	高雄市	75	6.6	6.7	
台南縣	57	5.1	4.9	金門縣	7	0.6	0.4	
高雄縣	60	5.3	5.5	連江縣	1	0.1	0.1	
屏東縣	42	3.8	3.8					
合計	(人)	1131	樣本%	100.0	母體 %	100.0		

在資料處理方面，由於部分受訪者回答之答案未涵蓋在問卷設定選項之內，在調查執行過程中，則以「其他」稱之，並於後續資料處理時進一步整理受訪者之回答。若受訪者回答之答案有超過 1%的比例屬同一性質，即會重新編碼，將超過 1%的選項獨立出來，因此會有分析與問卷選項不一致之情形；在資料分析方面，以次數分配及交叉分析為主要分析方法。

結果與討論

民眾對虎、熊、犀牛、龜鱉類中藥材的使用經驗與態度

虎、熊、犀牛、龜鱉類中藥材消費經驗及態度

根據本次研究調查結果發現，超過一成（10.8%）的受訪者表示其親朋好友曾經購買由虎、熊、犀牛、龜鱉等動物製成的中藥材，購買品項以龜鱉類中藥為最多，包含龜鹿二仙膠、龜鹿二仙膏、龜苓膏等；其次為虎骨中藥，包含虎骨膠、虎骨膏、虎骨酒、虎骨藥布貼片、虎鞭等。

但僅有 3.7%（42 位）的受訪者表示自己本身曾購買過由虎、熊、犀牛、龜鱉等動物製成的中藥材，其中仍以龜鱉類中藥材為最多（66.9%，28 位），其次為虎骨中藥（26.2%，11 位）。

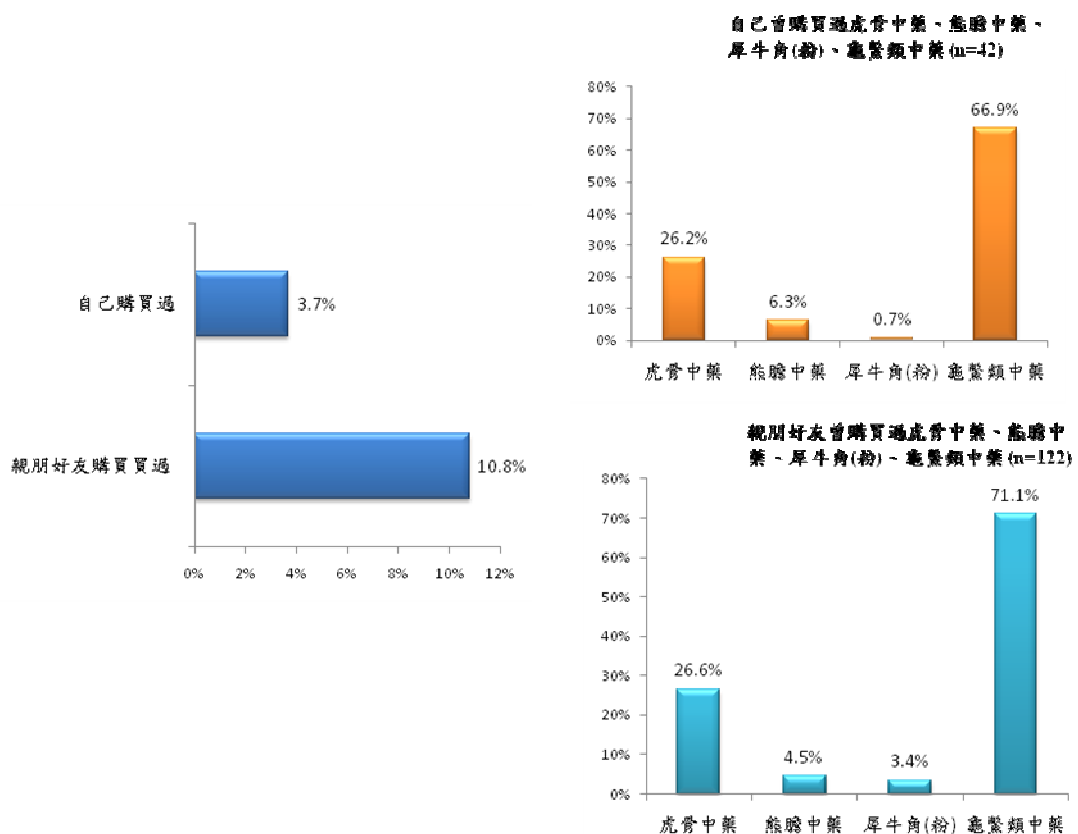


圖 1、自己與親友曾購買含虎骨、熊膽、犀牛角、龜鱉類等成分中藥材之經驗 (Q1、Q2)

這些本身具購買經驗的受訪者 (42 位) 其購買動機包括，覺得由虎、熊、犀牛、龜鱉製成的中藥「治療效果可能較好」(35.7%)，「好奇嘗試」(26.2%) (圖 2)。

令人訝異的，藥效雖是消費者購買此類中藥材的動機，但「好奇」竟然也成為消費者過去購買此四類保育類藥材的重要原因之一。

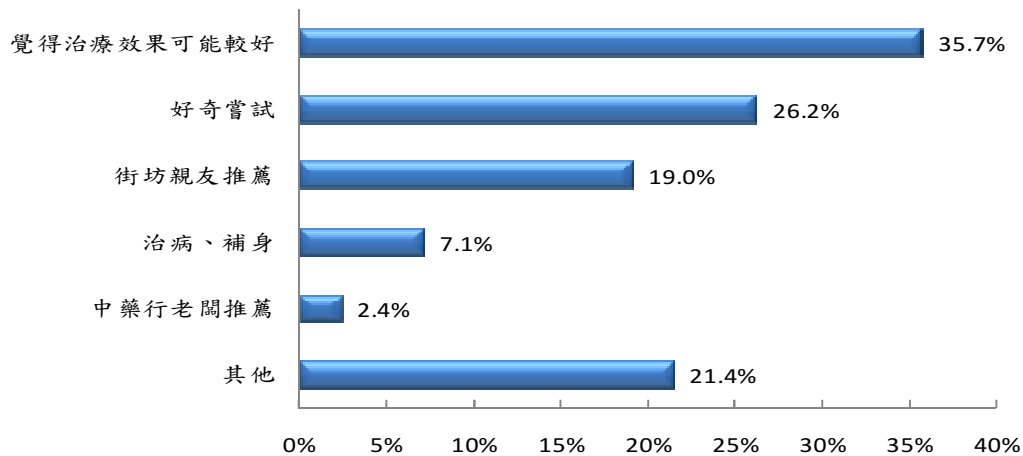


圖 2、購買含虎骨、熊膽、犀牛角、龜鱉類等成分中藥材的原因 (Q3, n=42)

根據本研究顯示，雖然 58.0% 的受訪者認為虎、熊、犀牛、龜鱉類製成的中藥是中醫藥的傳統 (Q17)，但僅有 19.9% 的受訪者認為含有此四類保育動物成份的中藥材具有一定的藥用價值，而 49.1% 的受訪者則持否定的態度 (Q4)。同時，71.2% 的受訪者認為使用這些保育類動物製成的中藥所產生的藥效只是一種心理作用 (Q20) (圖 3)。

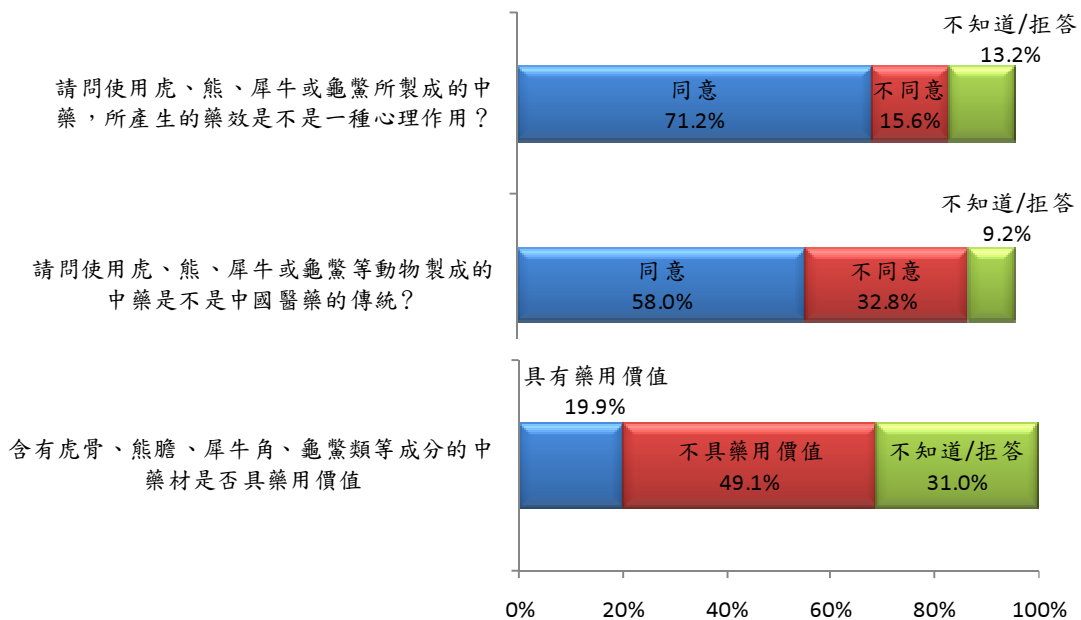


圖 3、台灣受訪者對使用虎、熊、犀牛、龜鱉等動物製成的中藥藥效態度 (Q20、Q17、Q4, n=1,131)

45.8%的受訪者認為虎、熊、犀牛、龜鱉類的中藥材可在管制之下使用 (Q18)；但 79.6%受訪者則認為，因為野生族群數量不足，使用替代品就好 (Q19)；47.6%的受訪者認為含有虎、熊、犀牛、龜鱉類成分的中藥材具有療效相近，或具部分療效的替代藥材可使用 (Q7) (圖 4)，例如：以植物性藥材取代動物性藥材、利用保健食品補給不足的營養、從日常食物中汲取營養、看西醫，或者若是需要動物性藥材，可用非保育類動物取代；僅有 8.7%的受訪者認為此類野生動物製成的藥材具不可替代性。受訪者對於是否有替代品 (Q7) 與就醫習慣 (C6) 沒有統計上的相關性。

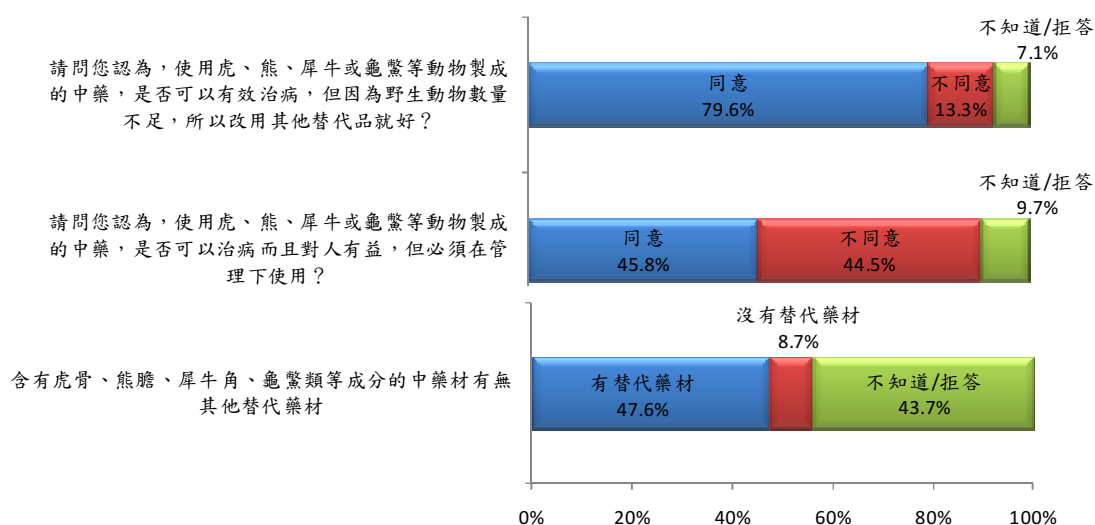


圖 4、台灣受訪者對使用虎、熊、犀牛、龜鱉等動物製成的中藥替代品態度 (Q19、Q18、Q7，n=1,131)

虎、熊、犀牛、龜鱉類中藥材未來消費意願

進一步詢問受訪者未來是否會考慮購買由虎、熊、犀牛、龜鱉類動物製成的中藥材發現，高達 96.3%的受訪者表示不考慮購買 (Q5)，僅 2.8% (32 位) 的受訪者表示考慮購買，而且仍然以「覺得治療效果可能較好」的購買動機比例為最高 (49.0%)，且遠高於「使用後，覺得治療效果較好」(13.2%) 及「醫生建議」(11.3%) (Q6)。可見約有一半未來考慮購買的受訪者其消費原因是主觀感覺的認定，並非因為經驗或專業的建議。

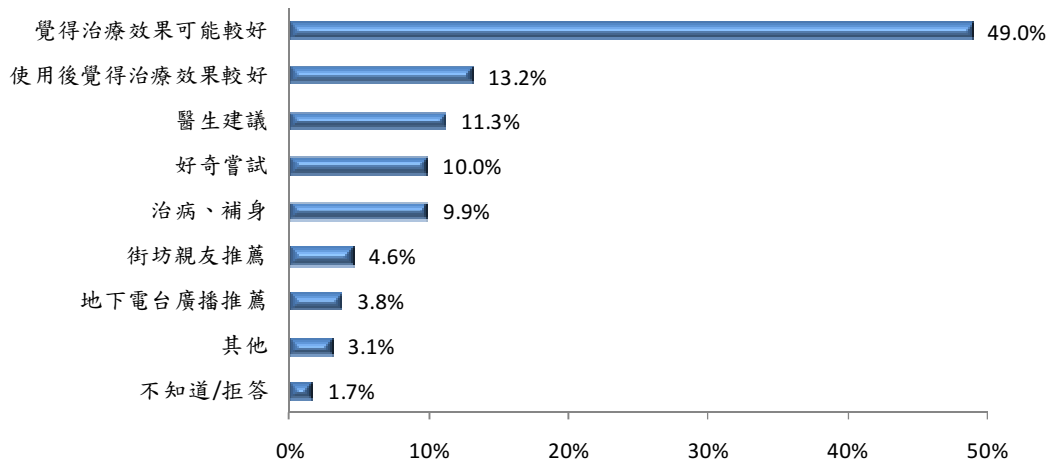


圖 5、未來考慮購買含有虎、熊、犀牛、龜鱉類等成分中藥的受訪者的購買動機 (Q6, n=32)

交叉比對曾經購買與未來可能購買的族群，發現本身曾經購買過含有虎、熊、犀牛、龜鱉類成分中藥的受訪者中（3.7%，42 位），有 26.2%（11 位）表示未來考慮購買（圖 6）。而不曾購買過含有虎、熊、犀牛、龜鱉類成分中藥的受訪者中，有 2%（21 位）表示未來考慮購買（圖 6）。這樣的結果代表，雖然多數的人口過去都未曾購買或使用虎、熊、犀牛、龜鱉類的中藥，但若情況改變，即便只有極少數比例的人口轉變其購買意願，實際的消費者人數可能也有一定數量，這對於族群數量已經很稀少的虎、熊、犀牛可能會造成明顯的影響。

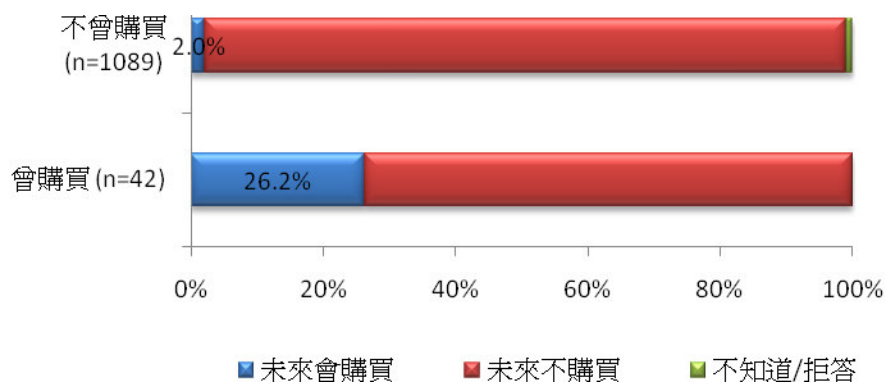


圖 6.含有虎、熊、犀牛、龜鱉類等成分中藥材的潛在消費者 (Q2、Q5, n=1,131)

經交叉比對發現，無論是過去購買經驗或未來購買意願，與性別、年齡與教育程度並沒有顯著差異，與就醫習慣（C6）也沒有顯著差異。但未來購買意願與家庭年收入（C5）進行比較，在統計上有顯著差異；但因未來有意購買虎、熊、犀牛、龜鱉類中藥的族群非常少，因此需要更多研究才能達成較明確的結論。

未來考慮購買此四類物種藥材的受訪者認為「使用虎、熊、犀牛或龜鱉動物製成的中藥是中國醫藥的傳統」的比例（75.8%=39.4%+36.4%）較未來不考慮購買者（57.5%=17.7%+39.8%）高（表 1）；認為「含有虎骨、熊膽、犀牛角、龜鱉類等成分的中藥材，具有一定的藥用價值」的比例（65.6%）也較未來不考慮購買者（18.5%）高；認為「使用虎、熊、犀牛或龜鱉所製成的中藥，所產生的藥效是一種心理作用」的比例（50.0%）則較未來不考慮購買者的比例（71.8%）低。

表 1、未來購買意願與傳統醫藥觀念交叉表

Q17 請問使用虎、熊、犀牛或龜鱉等動物製成的中藥是不是中國醫藥的傳統？(%)							
未來購買意願	非常同意	還算同意	不太同意	非常不同意	不知道/拒答	總計	p-value
未來考慮購買 (n=32)	39.4	36.4	15.1	9.1	0.0	100.0	X ² =15.847 P<0.05
未來不考慮購買 (n=1089)	17.7	39.8	17.5	15.6	9.4	100.0	
不知道/拒答 (n=10)	11.1	44.5	22.2	0.0	22.2	100.0	
Q4 請問您認為含有虎骨、熊膽、犀牛角、龜鱉類等成分的中藥材，是否具有一定的「藥用價值」？(%)							
未來購買意願	是		否		不知道/拒答	總計	p-value
未來考慮購買 (n=32)	65.6		12.5		21.9	100.0	X ² =49.977 P<0.05
未來不考慮購買 (n=1089)	18.5		50.5		31.0	100.0	
不知道/拒答 (n=10)	33.3		11.1		55.6	100.0	
Q20 請問使用虎、熊、犀牛或龜鱉所製成的中藥，所產生的藥效是不是一種心理作用？(%)							
未來購買意願	非常同意	還算同意	不太同意	非常不同意	不知道/拒答	總計	p-value
未來考慮購買 (n=32)	21.9	28.1	37.5	9.4	3.1	100.0	X ² =33.181 P<0.05
未來不考慮購買 (n=1089)	39.2	32.6	11.5	3.3	13.4	100.0	
不知道/拒答 (n=10)	11.1	55.6	0.0	0.0	33.3	100.0	

綜合上述含有虎、熊、犀牛、龜鱉成分的中藥材消費傾向的相關分析，雖然多數（58.0%）的受訪者認為含有此類保育類野生動物成分的中藥材是中醫的傳統（Q17）。但僅有約 20%的受訪者認為這些物種的藥材具有一定的藥用價值（Q4），高達 71%受訪者認為含有保育類野生動物成分的藥材產生的藥效只是一種心理作用（Q20）。79.6%受訪者認為不是非要含有保育類野生動物成分藥材才可治病強身，仍有許多療效相近或具部分療效的藥材或方法可以取代（Q19）。

認同中醫藥傳統並非選擇使用虎、熊、犀牛、龜鱉成分的中藥材的關鍵原因，對於仍然有使用意願的消費者而言，「藥效」才是選擇的關鍵。但有使用意願的消費者對於「藥效」的認定卻是非常的主觀，甚至不一定參考過去的使用經驗與醫生專業建議。但同時也有更大比例的受訪者在認同中醫藥傳統文化下，認同**避免使用虎、熊、犀牛、龜鱉成分的中藥材，或使用替代藥品。**

民眾對虎、熊、犀牛家飾藝品消費經驗及態度

在虎、熊、犀牛製成的家飾品消費方面，1.2%的受訪者表示其親朋好友曾經購買此些保育類野生動物製成的家飾品，購買品項包括虎皮地毯、皮衣、犀牛角等裝飾品等（Q8）；而僅 0.1%（1 位）的受訪者表示自己本身曾購買過由保育類野生動物製成的印章（Q9）（圖 7）。

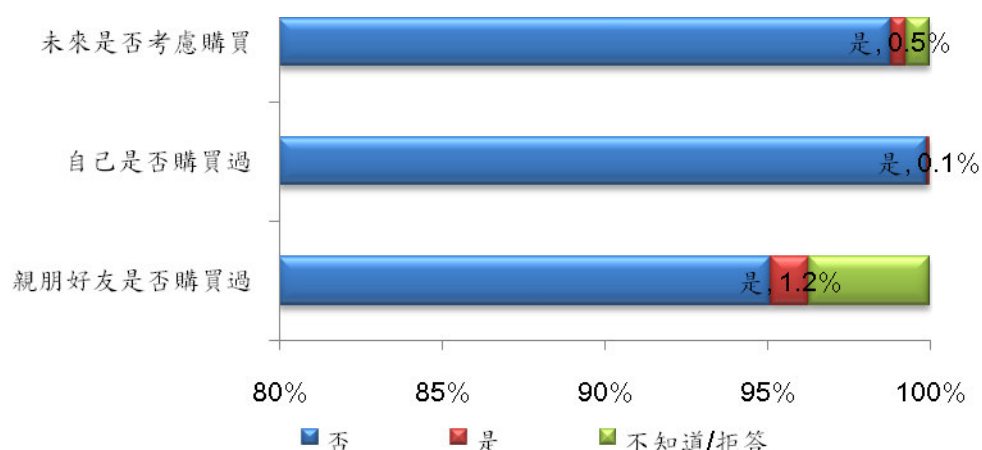


圖 7、台灣受訪者過去與未來購買含虎、熊、犀牛製成的家飾品之經驗與意願（Q8、Q9、Q11，n=1,131）

而問及未來購買意願，98.8%的受訪者表示未來不考慮購買，而有 0.5%的受訪者表示未來考慮購買（Q11），購買家飾品品項包括虎皮、虎頭、虎鞭，考慮購買動機包括偏好此風格、朋友介紹、親友需要等（Q12）。

令人訝異，與中藥材部分相反的是，自身曾經有購買經驗的受訪者僅有 0.1%，未來考慮購買者雖然仍然是極為少數（0.5%），但卻是上升的趨勢。

民眾的保育觀念及態度

野生動物因為棲地弱化、過度獵捕利用等原因，造成其族群的永續生存遭到不同

程度的威脅。爲了確保物種野生族群的永續生存，以及生態環境的穩定平衡，世界各國皆致力於瀕臨絕種動物的保育及復育。一個國家保育工作的執行與成效，除了需要有正確與適當的學術研究、政府政策、法律、執法外，一般民眾的保育的知識與態度是否正確、適當，以及當保育與自身利益衝突時的選擇，是一個國家保育工作能否落實與達成的重要關鍵。

雖然台灣民眾的保育觀念在政府、學校、保育組織多方長久的努力下，已有長足的進步，但民眾對於自身行爲對保育類物種可能造成的影響看法如何？

民眾對保育法規的認知

根據本研究顯示，受訪者對保育類物種有一定的認知，有 44.5% 的受訪者知道問題中所提的老虎、熊、犀牛、穿山甲、海龜、豹、大鼻羚羊、大象 8 類動物皆爲保育類動物，75.1% 的受訪者知道至少 6 類的保育類（圖 8，Q13）。

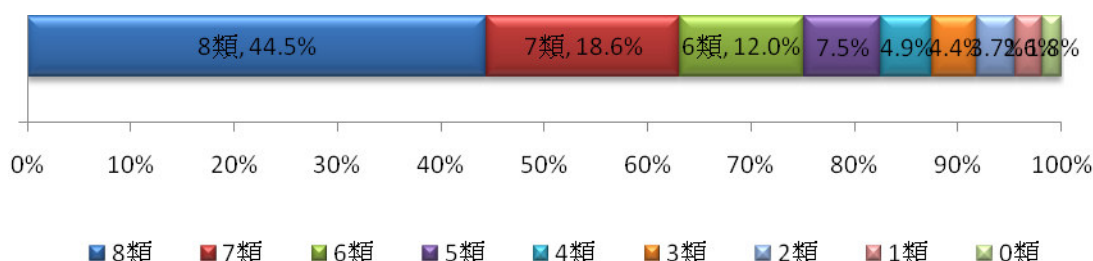


圖 8、台灣受訪者對保育類動物的認知項數及累計百分比（Q13，n=1,131）

受訪者知道熊屬於保育類動物的比例爲最高（89.8%），其次爲犀牛（86.4%）；而知道大象是保育類動物的比例爲最低（65.3%），次低爲大鼻羚羊（69.3%）；有 1.8% 的受訪者不知道哪些動物屬於保育類動物（圖 9）。這 1.8% 完全不認識這 8 類保育類的受訪者，以 60 歲以上者比例最高（66.7%）；教育程度方面，以國小及以下學歷的比例爲最高（40.9%），其次爲國中、初中學歷（31.8%）；在職業方面，以退休的比例爲最高（55.0%），其次爲家庭管理（20.0%）。

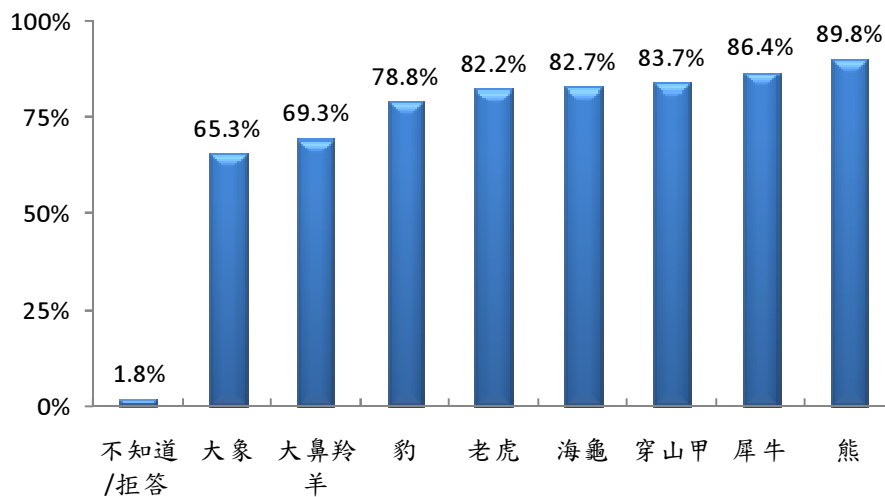


圖 9、台灣受訪者對保育類動物的認知比例 (Q13, n=1,131)

熊是最多受訪者認知的保育類物種可能與本研究執行電訪期間與台灣嘉義爆發熊掌宴的新聞有關 (2010/7/31)。新聞爆發前，知道熊是保育類野生動物的比例落在 75-95% 之間，而新聞爆發後，知道熊是保育類動物的比例於從平均 88.4% 增加至 100%，唯須留意的是，新聞爆發時已接近調查尾聲，調查接觸對象皆為離外島地區的受訪者，故新聞爆發前後對熊是否為保育類動物的認知比例僅為參考；另外，第二名的犀牛可能與台灣曾發生犀牛角事件有些關係。第三到第五名分別為穿山甲、海龜、老虎，其獲得的百分比在 83.7% - 82.2% 間，差異非常小，所以不能解釋成「知道穿山甲為保育類的受訪者較知道老虎為保育類的受訪者多」。

對於豹與老虎是否為保育類的認知，雖然知道豹為保育類的受訪者 (78.8%) 較知道老虎的少 (82.2%)，但這結果已經顯著的較本會另一針對中藥零售商的研究所好。本會於 2009 年對於零售商面訪的結果顯示，97% 的受訪中藥零售商知道虎骨為保育類，但僅 3% 的受訪中藥零售商知道豹骨為保育類藥材。

非常令人訝異的是，僅 65.3% 的受訪者知道大象為保育類，這是否因為『保育類等同全面禁止使用』的迷思，而台灣市面可以合法販售經過登註記的象牙製品有關，或其他因素需要進一步研究。但如果『保育類等同全面禁止使用』的迷思是造成受訪者或一般民眾對於保育類認知的落差，則可能顯示，台灣的保育教育與宣導工作雖有達成降低使用的不錯成果，但可能不夠細緻，而阻礙一些進階的保育工作的執行。例如：尚未瀕危但須管制使用量的物種，需要一些細微差異的規範，而非『全面性的禁止』。

根據《野生動物保育法》第 35 條規定，非經主管機關同意，保育類野生動物 (包

括老虎、熊、犀牛及許多龜鱉類)及其產製品,不得買賣或在公共場所陳列、展示。『保育動物』是指依據《野生動物保育法》第 4 條所公告的物種,另外依據第 55 條還公告了適用《野生動物保育法》的人工飼養、繁殖野生動物物種。其中所有不同個別物種老虎、熊、犀牛接受《野生動物保育法》第 35 條及第 55 條管理,也就是無論野生或人工飼養、繁殖的老虎、熊、犀牛個體及其產製品的買賣或在公共場所陳列、展示都受《野生動物保育法》的管理。

但龜鱉類的情況有些不同,龜鱉類涵蓋的物種種類較多,所屬的保育等級也不同。不但有些龜鱉類物種完全不受 CITES 或《野生動物保育法》規範,即便受到 CITES 或《野生動物保育法》規範的淡水龜鱉類或陸龜物種,其人工繁殖個體不受《野生動物保育法》規範。例如:許多 CITES 附錄 II 的龜鱉類不受《野生動物保育法》第 55 條管理,甚至有些淡水龜,如:全部屬於 CITES 附錄 II 的亞洲閉殼龜屬 (*Cuora spp.*),僅有食蛇龜 (*Cuora flavomarginata*) 列入《野生動物保育法》的保育類,但人工繁殖個體不受第 55 條管理。根據訪問結果(圖 10),受訪者認為台灣有針對買或賣野生熊的產製品進行特別管制的比例為最高(77.6%),其次為買或賣野生老虎的產製品(75.2%)及買或賣野生犀牛的產製品(75.1%);而僅有 60.3%的受訪者認為台灣有針對買或賣野生龜鱉的產製品進行特別管制。另外,受訪者認為台灣有針對買或賣人工養殖老虎的產製品進行特別管制的比例為最高(57.9%),其次為買或賣人工養殖的熊的產製品(57.4%),有 55.8%的受訪者認為人工養殖犀牛的產製品買或賣有受到管制;而針對買或賣人工養殖龜鱉的產製品進行特別管制的認知為最低(38.9%)。

整體而言,訪問結果反映了虎、熊、犀牛相對於龜鱉類在買賣管制上的不同,但也同時反應一般大眾對於「人工繁殖」與「野生」的虎、熊、犀牛受到不同的買賣管制的謬思。這樣的結果顯示受訪者對於買或賣保育類動物的相關法規不熟悉或不夠全面性的瞭解,也因此而導致對於「野生」與「人工繁殖」野生動物受到的管制可能有所差異的預期心理。

此外,亦有部分受訪者對於野生動物保育法的相關規定屬完全陌生,有 17.3%的受訪者不清楚或是認為政府沒有針對買或賣野生的虎、熊、犀牛、龜鱉類進行特別管制;有 32.0%的受訪者不清楚或是認為政府沒有針對買或賣人工養殖的虎、熊、犀牛、龜鱉類進行特別管制。

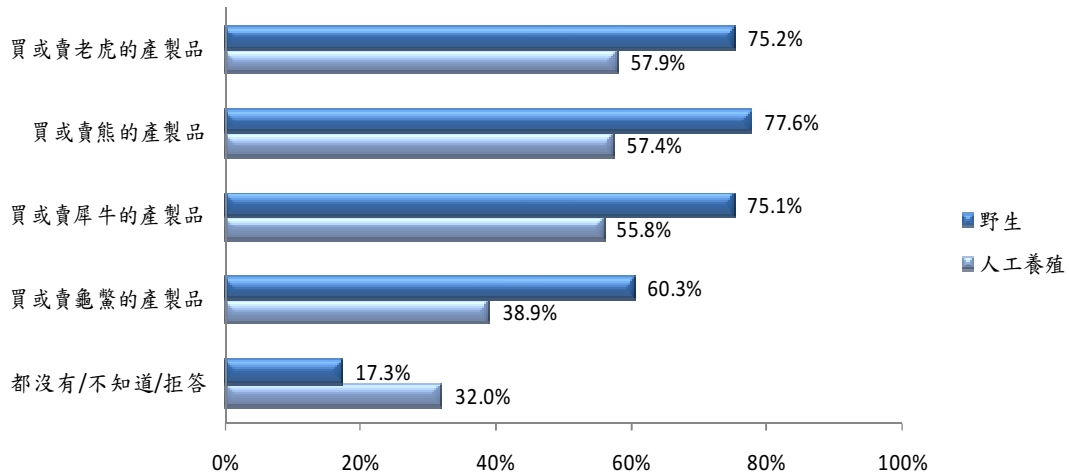


圖 10、台灣受訪者對虎、熊、犀牛、龜鱉有被特別管制的認知 (Q22-1, Q22-2, n=1,131)

保育類野生動物認知 (Q13) 與基本資料交叉分析發現，保育類野生動物認知會因年齡及教育程度不同而有顯著差異。在年齡方面，全然不知哪些物種為保育類動物 (答對 0 題者) 的人以 60 歲以上的比例最高 (6.4%)；教育程度方面，答對 0 題者以國小或以下的比例最高 (11.1%)，其次為國(初)中 (7.8%) (圖 11)。全部答對保育類物種者 (答對 8 題者)，以研究所或以上的族群答對的比率最高，有 59.5%，其他族群，不論是不同年齡或教育族群，全部答對者也有 40-47% 的比例 (圖 11)。

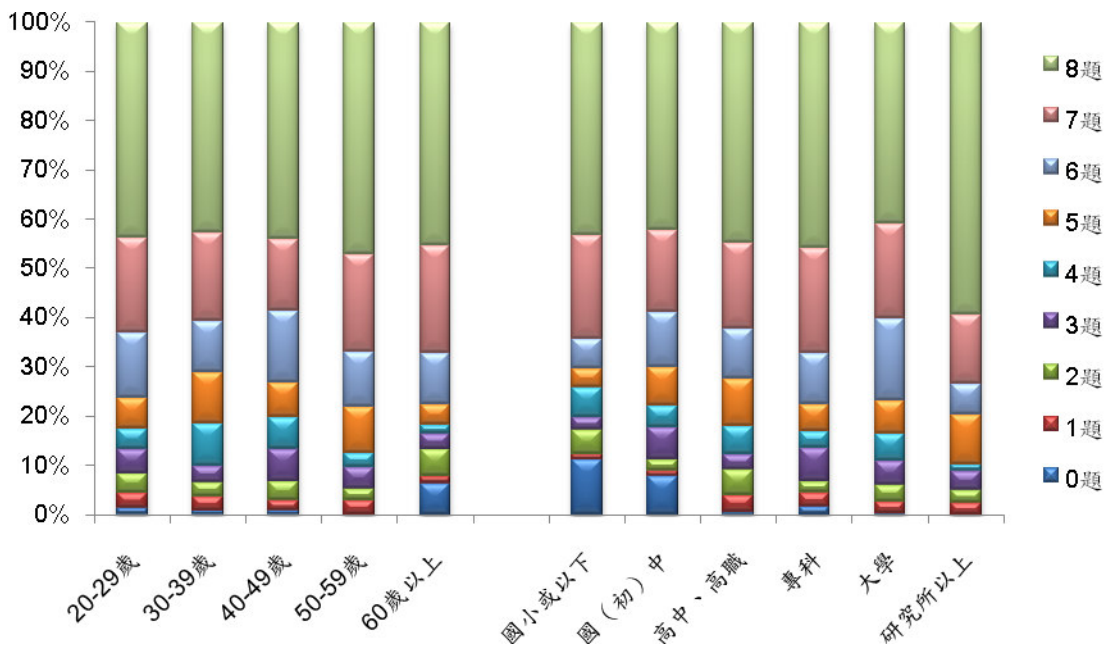


圖 11、基本資料與保育類野生動物認知 (Q13, n=1,131)

而保育類野生動物買賣法規認知 (Q22-1、Q22-2) 與年齡無相關，但會因教育程度不同而有顯著差異，全然不知保育類相關法規 (答對 0 題) 的人以國小或以下的比例最高 (28.7%)，完全答對者以具研究所學歷受訪者有較高比例 (33.3%)，但高中職與專科學歷受訪者也有不錯的表現 (圖 12)。

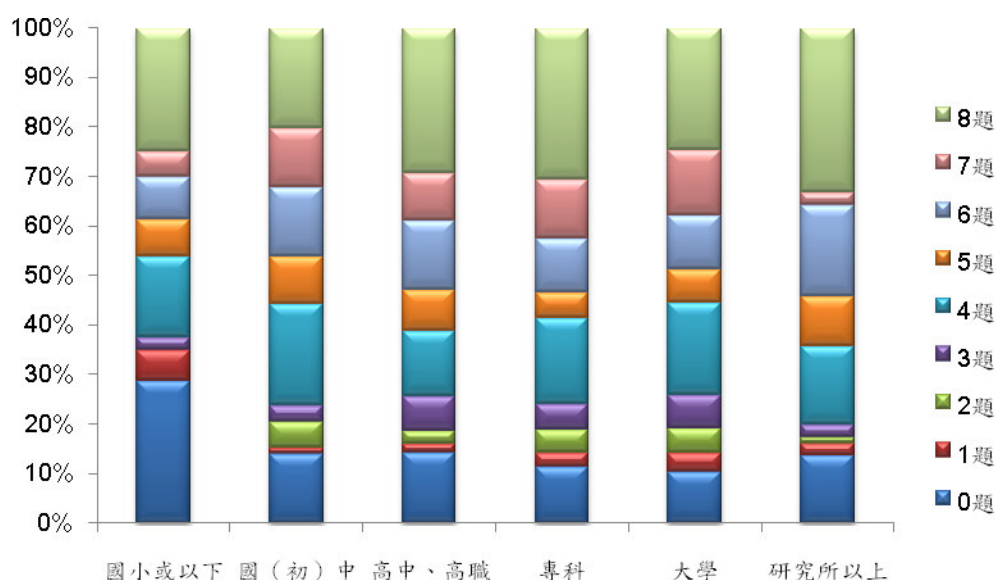


圖 12、基本資料與管制規範的認知 (Q22-1、Q22-2, n=1,131)

民眾的保育觀念

根據本研究調查結果 (圖 13)，超過 90% 的受訪者認為將虎、熊、犀牛或龜鱉動物製成中藥或家飾品會對這些物種的生存造成影響 (97.3%，Q14)，會對地球生態的平衡造成影響 (93.4%，Q15)，也會對台灣的國際形象造成負面影響 (95.4%，Q16)。

95.2% 的受訪者認為對於生存受到影響的虎、熊、犀牛或龜鱉動物採取保護工作是重要的 (77.2% 認為非常重要、18.0 認為還算重要) (Q21，圖 14)。

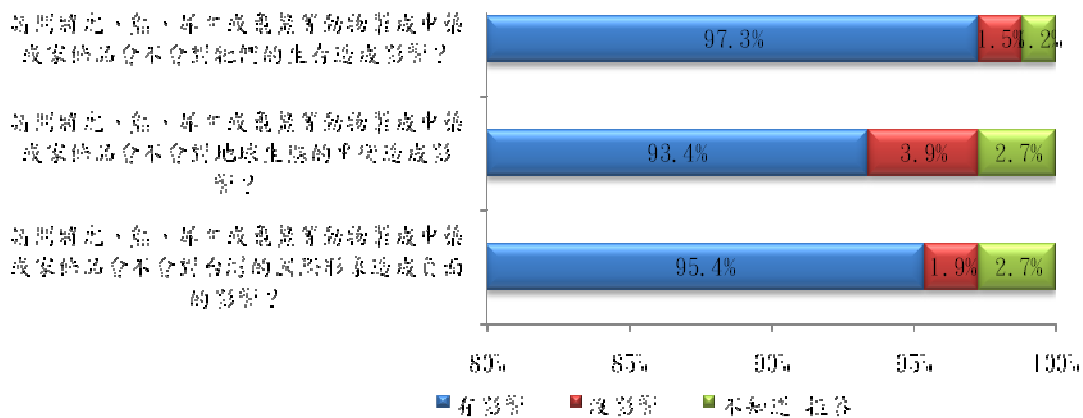


圖 13、台灣受訪者認為使用虎、熊、犀牛或龜鱉類產製品會產生的影響 (Q14、Q15、Q16, n=1,131)

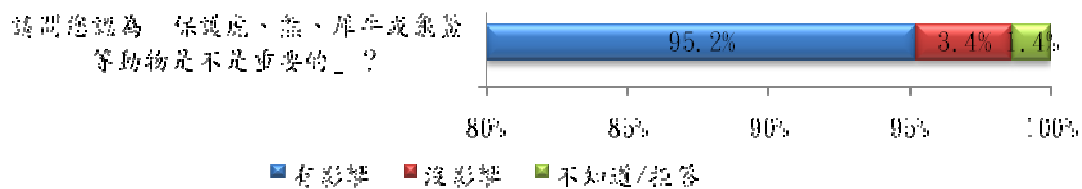


圖 14、台灣受訪者認為保護虎、熊、犀牛或龜鱉類是否為重要 (Q21, n=1,131)

然而詢問台灣受訪者使用虎、熊、犀牛或龜鱉動物製成的中藥，是否可以治病而且對人有利，但必須在管理下使用時 (Q18)，45.8%的受訪者同意此種說法，而有 44.5%的受訪者不同意此種說法；而問及使用虎、熊、犀牛或龜鱉動物製成的中藥，是否可以有效治病，但因為野生動物數量不足，所以改用其他替代品就好 (Q19)，有 79.6%的受訪者表示同意，13.3%的受訪者表示不同意。

前述兩題同意之比例不若使用虎、熊、犀牛或龜鱉等動物製成的中藥或家飾品會對其生存、地球的生態平衡、台灣的國際形象造成影響的認同比例高，尤其問及使用該些動物製成的中藥須在管理下使用，表示同意與不同意的比例相當。這樣的反應可能顯示，受訪者雖然瞭解虎、熊、犀牛與龜鱉類因為人類的使用需求所造成的負面影響，卻在治病或保育的抉擇上有所猶豫，但若提供『替代品』的選項，則多數受訪者會欣然接受。

虎、熊、犀牛、龜鱉面臨的最主要的問題

野生動物族群的永續生存長期以來不斷面臨不同的威脅，包括棲息地破壞、過度獵捕、氣候變遷或是管理不足等。本研究綜整保育類野生動物面對的問題，諸如：棲息地遭受嚴重破壞及改變、缺乏專門負責的機關、國人不守法、國人喜歡吃或使用野生動物產製品、教育宣導工作不足、氣候變遷等，針對虎、熊、犀牛、龜鱉動物，詢問台灣受訪者，認為虎、熊、犀牛、龜鱉動物這些物種當前最主要面臨的問題為何（Q23）。其中認為虎、熊、犀牛、龜鱉最主要面的問題為棲息地遭受嚴重破壞及改變的比例為最高（31.6%），其次為國人喜歡吃或者使用野生動物產製品（19.7%）；受訪者認為國人不守法（13.9%）與教育宣導工作不足（13.3%）也是問題（圖 15）。

此外，在棲息地遭受嚴重破壞及改變、缺乏專門負責的機關、國人不守法、國人喜歡吃或者使用野生動物產製品、教育宣導工作不足及氣候變遷等答項之外，回答『其他』的受訪者？有 1.6%的受訪者認為虎、熊、犀牛、龜鱉面臨最主要的問題為瀕臨絕種；1.4%的受訪者認為其面臨最主要的問題為濫捕。雖然此些受訪者未能精確地針對虎、熊、犀牛、龜鱉面臨的問題做回答，但整體來說，多數的台灣受訪者確實瞭解虎、熊、犀牛、龜鱉面臨數量愈來愈少的問題。

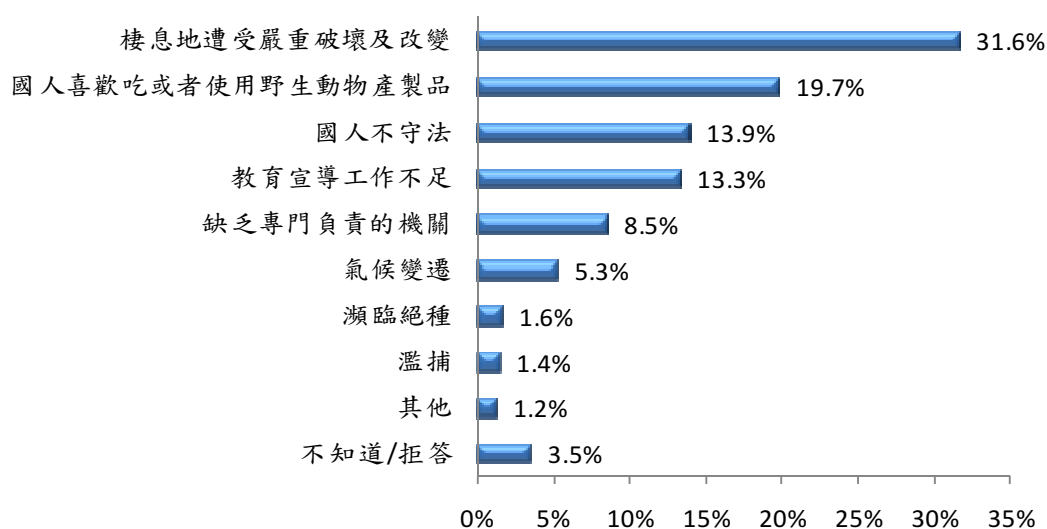


圖 15、台灣受訪者認為虎、熊、犀牛、龜鱉最主要面臨的問題（Q23，n=1,131）

有趣的是，若比較過去有購買經驗與未來有購買意願的受訪族群可發現（圖 16），棲息地遭受嚴重破壞（>43.8%）仍被列為此四類動物所面臨的最重要問題，這兩個族群也都認為教育宣導不足也是一個重要的問題。但本研究訪問發現受訪者的保育知識與法規認知有八、九成的水準，因此所謂的「教育宣導不足」應不是知識面的不足。

根據 TRAFFIC 在中國 6 個城市進行的一項野味消費調查研究顯示，將近九成的受訪民眾支持野生動物保護，但一年內有食用過野味的受訪者有 25-71%，以北京最低，廣州最高（Anno. 2010a）。雖然此調查研究不適合與本研究直接相比，但這樣的結果顯示，民眾的保育觀念良好與否，與宣傳工作的量與品質可能比較有相關。但良好的保育觀念卻不代表對於野生動物正確、適當的使用態度。

相對於曾經購買過虎、熊、犀牛、龜鱉製成的藥材的受訪者中（n=42），認為國人喜歡吃或者使用野生動物產製品（17.1%）是個大問題；未來有意購買虎、熊、犀牛、龜鱉製成的藥材的受訪者（n=32），則認為虎、熊、犀牛、龜鱉面臨的主要問題為國人不守法（15.6%）及缺乏專門負責的機關（12.5%）。根據上述分析可發現，少數受訪者，尤其是未來可能的消費者，知道虎、熊、犀牛、龜鱉面臨生存的問題，但仍考慮購買其產製品。造成如此的原因，也許是因為受訪者認為造成這些物種瀕危的主要原因是棲息地遭到破壞，自身的消費習慣沒有或不會對野生族群造成關鍵性的影響，這應該是未來在教育宣導方面需要加強的重點。

目前台灣民眾的保育觀念已經非常普及，未來在教育宣導上，除了在某些觀念上可能必須加強保育知識的深度外，其實更重要的是如何提高民眾瞭解自身行為對於環境的影響，以及將已知的正確觀念轉化成日常生活中正確的行為與習慣。

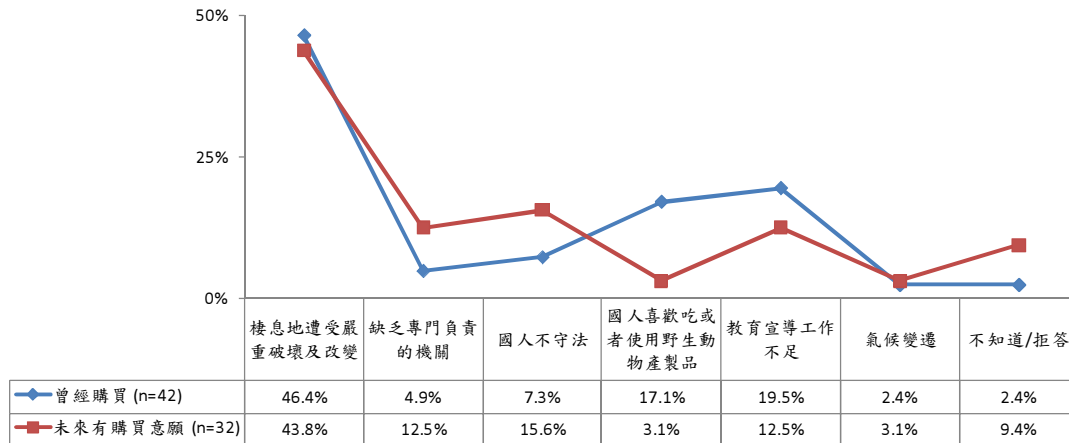


圖 16、曾經購買及未來有意願購買虎、熊、犀牛、龜鱉等中藥材受訪者認為這些動物面臨最主要的問題（交叉比對 Q2（n=42）、Q5（n=32）與 Q23 之結果）

野生動物相關資訊來源管道

根據本調查顯示，無論是一般資訊或野生動物相關資訊，電視、網路與報紙是受訪者接受資訊來源的三大主要管道，其中依賴電視與網路為資訊來源的受訪者就佔了八成（圖 17）。雖然台灣的網路普及率非常的高（70%，Anno. 2010b），但電視仍是受訪者最主要的資訊獲得來源，且與第二項管道『網路』有超過 35-55% 的差距。這可能與電視仍是最方便的大眾傳播工具，可以多人同時使用。相對的，網路通常同一時間只能一人使用，且需使用者主動搜尋資料，不像電視會主動餵食使用者資訊。

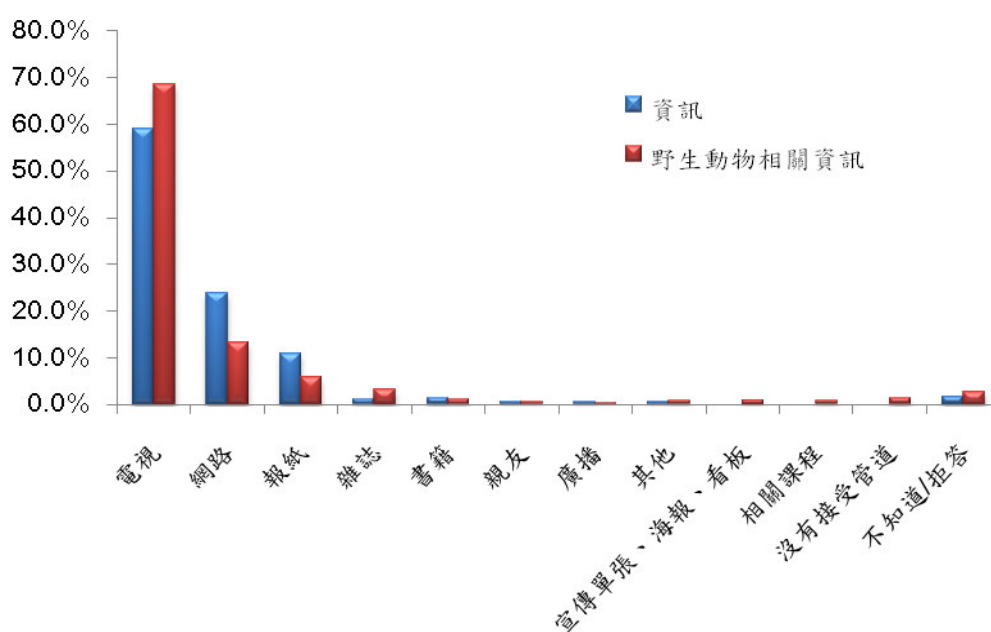


圖 17、接受「資訊」與「野生動物相關資訊」的管道（Q24、Q25，n=1,131）

進一步與基本資料交叉比對發現，無論是一般「資訊」或「野生動物相關資訊」，透過網路獲得資訊會因不同性別、年齡、教育程度而有顯著差異（圖 18），男性、年齡層愈低、教育程度愈高，透過網路獲取資訊的比例愈高。

而透過電視獲得「一般資訊」也會因不同性別、年齡、教育程度有顯著差異，女性、50 歲以上、教育程度專科以下的受訪者有六成以上的比例透過電視獲取一般資訊。但由電視獲得「野生動物相關資訊」則與年齡、教育程度有顯著差異，與性別無顯著差異。各年齡層均有六成以上的比例透過電視獲得野生動物相關資訊，其中 40-49 歲透過電視獲取資訊的比例高達 73.7%；教育程度方面，學歷國初中至專科的受訪者，有七成以上的比例透過電視獲取野生動物相關資訊（圖 18）。

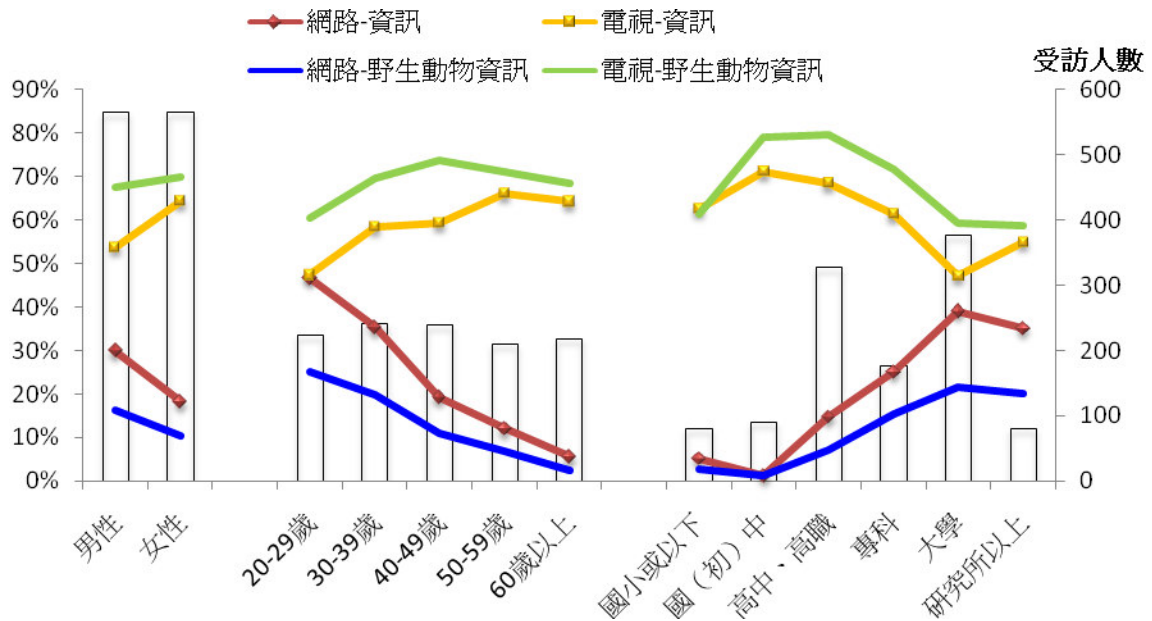


圖 18、資訊主要來源管道與性別、年齡、教育程度基本資料交叉比對 (Q24、25, n=1,131)

對照受訪者回應接受資訊管道的比例，僅有 20-29 歲受訪者在經由電視或網路獲得資訊上有不分軒輊的狀況，其餘的性別、年齡、學歷階層都以電視為主要的接收訊息管道，至於野生動物相關的訊息，此趨勢更為明顯。因此，透過電視進行野生動物相關的教育宣導仍是不可避免的方式。當然，未來的宣導方式，需要更為活潑、更具吸引力與知識的深度，且與行為改變做連結，而非只是政府政策或法規的傳播。另外，也可考慮，如何利用電視為媒介，提高各族群民眾透過網路獲取各項資訊的意願與比例。

結論與建議

整體而言，台灣的受訪者多數 (>96.3%) 未曾購買由虎、熊、犀牛或龜鱉動物製成的中藥材或家飾品，而且未來也不會考慮購買 (>96.3%)。對於保育動物物種認知方面，約七成五的受訪者知道老虎、熊、犀牛、穿山甲、海龜、豹、大鼻羚羊、大象此八種動物中的六種為保育類動物，僅約 2% 的受訪者對保育類動物物種全然陌生。在買賣法規認知方面，知道政府有針對買或賣野生老虎、熊、犀牛或龜鱉產製品進行特別管制的認知比買或賣人工養殖產製品高約至少 20%；而不同物種間，受訪者對買賣龜鱉有特別管制的認知較低。

綜合結果，過去沒有購買經驗或未來沒有購買意願的受訪民眾 (>96.3%) 高於受訪者對於法律管制的認知正確 (Q22, 39-78%) 的比例。九成以上

(93.4%–97.3%)的受訪者認為使用這些保育類的製品會對物種生存或地球生態造成影響，且認為保護這些物種是重要的(95.2%)。

極少數具有購買這些物種中藥材經驗的人(n=42)，約有1/3的多數是因為覺得治療效果可能較好而購買，其次約有1/4因為好奇而嘗試。極少數表示未來考慮購買由虎、熊、犀牛或龜鱉製成的中藥材的受訪者，仍以覺得治療效果可能較好的比例為最高(49.0%)。未來考慮購買的人，也有較高的比例同意，使用保育類動物製成的中藥是中國醫藥的傳統(75.8%)，也認為這些藥材具有一定的藥用價值，不單單只是心理作用(46.9%)。

本研究分析顯示，受訪者認為虎、熊、犀牛或龜鱉最主要面臨的問題以棲息地遭受嚴重破壞及改變的比例最高，其次依序為國人喜歡吃或使用野生動物產製品、國人不守法、教育宣導工作不足。

這樣的結果表示民眾選擇是否使用虎、熊、犀牛、龜鱉類的保育類野生動物並非完全依據法律規範；許多決定不去購買的民眾可能是因為物種保育或維護地球生態的因素，而具有購買意願的受訪者，「可能的藥效」卻是決定其意願的因素。這表示有效的**保育教育可以有效的影響多數的民眾，提高民眾的自我管理，減少國家法律與執法人員的介入，降低民眾與政府的衝突對立**。然而**法律與有效的執法無法偏廢**，除了可提供整個社會的行為準則，包括哪些保育物種、哪類的使用方式需要規範外，也可在必要時，**處理不理會群體長遠利益，而只顧自身利益民眾的違法行為**。

台灣民眾在接收「野生動物相關資訊」與其他一般訊息的習慣相符；也就是**多數的民眾傾向於被動式的由電視『餵食』資訊**，僅有少數受訪者會透過需要某些程度的『主動搜尋』的網路獲得資訊。因此，在主動收集訊息習慣養成前，若缺乏政府、保育團體、學校不間斷的教育宣導或課程，台灣民眾可能在一段時間之後會出現保育觀念的落差或空窗期，在之後的銜接上會有困難。

另外，雖然從網路獲取野生物保育訊息的民眾屬於少數，但提供野生動物保育相關的網頁或系統性的將野生動物保育資訊放上各類網站仍然極具價值，因為相對於電視而言，**網路仍是相當便宜的大眾媒體，而且存放在網路上的資訊可以永久存放，提供無遠弗屆的查詢**。但顯然的，其設計方式、提供媒介的網站，以及提高大眾、網友的搜尋興趣是極為關鍵、重要。同時，以電視做為媒介的教育宣導可能也無法偏廢，但**需能傳遞『改變消費行為或生活習慣，以達到保育物種野生族群永續生存』的關鍵訊息**，且應同時能**逐步的養成民眾主動蒐集資訊的習慣與能力**。另外，也可考慮如何利用電視建立民眾主動獲取野生物及保育資訊的習慣。

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附件：問卷

「保育類野生動物產製品消費傾向調查」

研究問卷

開場白：您好，我們是 XXXX 民意調查中心，要進行一項有關野生動物產製品消費的電話訪問，本調查僅做為學術研究運用，請您放心，打擾您幾分鐘的時間，請您接受我們的訪問，謝謝！

S1. 爲了訪問上的需要，請問您這裡是住家嗎？

(1) 不是--不好意思，我們要訪問一般住家，下次有機會再訪問您，謝謝!

【結束訪問】

(2) 是(含住商合一) 【繼續訪問】

S2. 請問您是否年滿 20 歲？(若否:)因爲我們需要訪問 20 歲以上的民眾，能不能請您家中 20 歲以上的家人來聽電話？謝謝！(若更換對象，請重新說明開場白) 請問您今年幾歲？

(0) 19 歲以下 【結束訪問】

(1) 20-29 歲

(2) 30-39 歲

(3) 40-49 歲

(4) 50-59 歲

(5) 60 歲以上

(99) 不知道/拒答 【結束訪問】

S3 因爲您的電話是電腦隨機抽樣出來的，請問您的居住地是在台灣的哪一個縣市？

(1) 臺北縣

(2) 宜蘭縣

(3) 桃園縣

(4) 新竹縣

(5) 苗栗縣

(6) 臺中縣

(7) 彰化縣

(8) 南投縣

(9) 雲林縣

(10) 嘉義縣

(11) 臺南縣

(12) 高雄縣

(13) 屏東縣

(14) 臺東縣

(15) 花蓮縣

(16) 澎湖縣

(17) 基隆市

(18) 新竹市

(19) 臺中市

(20) 嘉義市

(21) 臺南市

(22) 臺北市

(23) 高雄市

(63) 金門縣

(64) 連江縣

(99) 不知道/拒答(非常感謝您接受我們的訪問，祝您有個愉快的夜晚)【結束訪問】

S4 請問您是否從事中醫藥的相關行業？

(1) 是(不好意思，我們要訪問不是中醫藥相關行業的受訪者，下次有機會再訪問您，祝您有個愉快的夜晚)【結束訪問】

(2) 否 【繼續訪問】

S5 請問您有沒有參加保育團體（如：荒野保護協會、中華鳥會、各縣市野鳥學會等）？

(1) 有（不好意思，我們要訪問沒有參加保育團體的受訪者，下次有機會再訪問您，祝您有個愉快的夜晚）【結束訪問】

(2) 沒有【繼續訪問】

■主題一：保育類野生動物中藥品(老虎、熊、犀牛、龜鱉)消費現況■

註：Q1-Q7 為中藥材題組、Q8-Q12 為家飾品題組。於電話調查中進行題組輪替

Q1. 請問您的親朋好友是否購買過虎骨中藥(如：虎骨膠、虎骨酒、虎骨藥布貼片)、熊膽中藥(如：熊膽粉、熊膽汁)、犀牛角（粉）、龜鱉類中藥(如：龜鹿二仙膠、龜苓膏)等藥材？

(1) 親朋好友購買過_____【請訪員紀錄藥品】

(2) 否

(99) 不知道/拒答

Q2. 請問您本身是否購買過虎骨中藥(如：虎骨膠、虎骨酒、虎骨藥布貼片)、熊膽中藥(如：熊膽粉、熊膽汁)、犀牛角（粉）、龜鱉類中藥(如：龜鹿二仙膠、龜苓膏)等藥材？

(1) 購買過_____【請訪員紀錄藥品】

(2) 否(跳 Q4)

(99) 不知道/拒答(跳 Q4)

Q3. 請問您最初購買的原因為何?(此題為複選)(若受訪者回答治病、補身、送人，請訪員追問)

(1) 中藥行老闆推薦 (2) 街坊親友推薦 (3) 覺得治療效果可能較好

(4) 好奇嘗試 (5) 地下電台廣播推薦 (6) 網路討論

(65) 其他_____ (請說明) (99) 不知道/拒答

Q4. 請問您認為含有虎骨、熊膽、犀牛角、龜鱉類等成分的中藥材，是否具有一定的「藥用價值」？

(1) 是 (2) 否 (99) 不知道/

拒答

Q5. 請問您未來是否會考慮購買虎骨中藥(如：虎骨、虎骨膠、虎骨酒、虎骨藥布貼片)、熊膽中藥(如：熊膽粉、熊膽汁)、犀牛角（粉）、龜鱉類中藥(如：龜鹿二仙膠、龜苓膏)等藥材？

(1) 是_____ (請舉例) (2) 否(跳 Q7) (99) 不知道/
拒答(跳 Q7)

Q6. 請問您（未來會）考慮購買的原因為何?(此題為複選)

- (1)中藥行老闆推薦 (2)街坊親友推薦 (3)覺得治療
效果可能較好
 (4)好奇嘗試 (5)地下電台廣播推薦 (6)網路討論
 (7)使用後覺得治療效果好 (65)其他_____ (請說明) (99) 不知道/
拒答

Q7. 請問您認為含有虎骨、熊膽、犀牛角、龜鱉類等成分的中藥材，有沒有其他藥材可以替代？

- (1) 有，療效相近_____ (請舉例)
 (2) 有，具有部分療效_____ (請舉例)
 (3) 沒有
 (99) 不知道/拒答

Q8.請問您的親朋好友是否購買過由虎、熊或犀牛製成的家飾品，如：虎皮地毯、熊皮、犀牛角家飾品…等。

- (1) 親朋好友購買過_____ 【請訪員紀錄何種家飾品】
 (2) 否
 (99) 不知道/拒答

Q9.請問您自己本身是否購買過由虎、熊或犀牛製成的家飾品，如：虎皮地毯、熊皮、犀牛角家飾品…等。

- (1)購買過_____ 【請訪員紀錄何種家飾品】
 (2) 否(跳 Q11)
 (99) 不知道/拒答(跳 Q11)

Q10.請問您當初購買虎製品、熊製品或犀牛角家飾品的原因為何? (此題為複選)

- (1)偏好此風格 (2)店家推薦 (3)珍奇收藏
 (4)風水 (65)其他_____ (請說明) (99) 不知道/
拒答

Q11.請問您未來是否會考慮購買由虎、熊或犀牛製成的家飾品?

- (1) 是 (請舉例) (2) 否(跳 Q13) (99) 不知道/
拒答(跳 Q13)

Q12.請問您（未來會）考慮購買的原因為何？(此題為複選)

- (1)偏好此風格 (2)店家推薦 (3)珍奇收藏

(4) 風水
拒答

(65) 其他_____ (請說明) (99) 不知道/

■主題二： 保育觀念認知題組■

Q13. 請問您認為下列哪些動物是保育類動物？（此題為複選題，選項輪替）

(1) 老虎 (2) 熊 (3) 犀牛 (4) 穿山甲 (5) 海龜
 (6) 豹 (7) 大鼻羚羊 (8) 大象 (99) 不知道/拒答

接下來請教您對於下列敘述的同意程度：(Q14~21 進行題目輪替)

Q14. 請問將虎、熊、犀牛或龜鱉等動物製成中藥或家飾品會不會對牠們的生存造成影響？

(1) 非常有影響 (2) 有一些影響 (3) 不太有影響 (4) 非常沒影響 (99) 不知道/拒答

Q15. 請問將虎、熊、犀牛或龜鱉等動物製成中藥或家飾品會不會對地球生態的平衡造成影響？

(1) 非常有影響 (2) 有一些影響 (3) 不太有影響 (4) 非常沒影響 (99) 不知道/拒答

Q16. 請問將虎、熊、犀牛或龜鱉等動物製成中藥或家飾品會不會對台灣的國際形象造成負面的影響？

(1) 非常有影響 (2) 有一些影響 (3) 不太有影響 (4) 非常沒影響 (99) 不知道/拒答

Q17. 請問使用虎、熊、犀牛或龜鱉等動物製成的中藥是不是中國醫藥的傳統？

(1) 非常同意 (2) 還算同意 (3) 不太同意 (4) 非常不同意 (99) 不知道/拒答

Q18. 請問您認為，使用虎、熊、犀牛或龜鱉等動物製成的中藥，是否可以治病而且對人有益，但必須在管理下使用？

(1) 非常同意 (2) 還算同意 (3) 不太同意 (4) 非常不同意 (99) 不知道/拒答

Q19. 請問您認為，使用虎、熊、犀牛或龜鱉等動物製成的中藥，是否可以有效治病，但因為野生動物數量不足，所以改用其他替代品就好？

(1) 非常同意 (2) 還算同意 (3) 不太同意 (4) 非常不同意 (99) 不知道/拒答

Q20.請問使用虎、熊、犀牛或龜鱉所製成的中藥，所產生的藥效是不是一種心理作用？

(1)非常同意 (2)還算同意 (3)不太同意 (4)非常不同意 (99)不知道/拒答

Q21.請問您認為「保護虎、熊、犀牛或龜鱉等動物是不是重要的」？

(1)非常重要 (2)還算重要 (3)不太重要 (4)非常不重要 (99)不知道/拒答

■主題三：法規認知題組■

Q22-1. 請問下列行為在台灣有沒有被特別管制？（1~4 選項輪替）

- (1)「買」或「賣」野生老虎的產製品
- (2)「買」或「賣」野生熊的產製品
- (3)「買」或「賣」野生犀牛的產製品
- (4)「買」或「賣」野生龜鱉的產製品
- (5)都沒有
- (99)不知道/拒答

Q22-2. 請問下列行為在台灣有沒有被特別管制？（1~4 選項輪替）

- (1)「買」或「賣」人工養殖龜鱉的產製品
- (2)「買」或「賣」人工養殖老虎的產製品
- (3)「買」或「賣」人工養殖的熊的產製品
- (4)「買」或「賣」人工養殖犀牛的產製品
- (5)都沒有
- (99)不知道/拒答

Q23. 請問您認為虎、熊、犀牛、龜鱉最主要面臨什麼問題？(逐一提示選項，選項輪替)

- (1)棲息地遭受嚴重破壞及改變
- (2)缺乏專門負責的機關
- (3)國人不守法
- (4)國人喜歡吃或者使用野生動物產製品
- (5)教育宣導工作不足
- (6)氣候變遷
- (65)其他_____ (請追問是否還有其他)
- (99)不知道/拒答

■主題四： 資訊來源管道題組■

Q24.請問您平常接受資訊最主要的管道是哪一種？（單選，不提示，勾選第一個回答的項目）

- | | |
|---|--------------------------------------|
| <input type="checkbox"/> (1) 親友 | <input type="checkbox"/> (2) 電視 |
| <input type="checkbox"/> (3) 廣播 | <input type="checkbox"/> (4) 報紙 |
| <input type="checkbox"/> (5) 雜誌 | <input type="checkbox"/> (6) 網路 |
| <input type="checkbox"/> (65) 其他_____ (請追問是否還有其他) | <input type="checkbox"/> (99) 不知道/拒答 |

Q25.請問您平常接受「野生動物相關資訊」最主要的管道是哪一種？（單選，不提示，勾選第一個回答的項目）

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> (1) 親友 | <input type="checkbox"/> (2) 電視 |
| <input type="checkbox"/> (3) 廣播 | <input type="checkbox"/> (4) 報紙 |
| <input type="checkbox"/> (5) 雜誌 | <input type="checkbox"/> (6) 網路 |
| <input type="checkbox"/> (7) 宣傳單張、海報、看板 | <input type="checkbox"/> (8) 大眾交通工具廣告 |
| 海報宣傳 | |
| <input type="checkbox"/> (65) 其他_____ (請追問是否還有其他) | |
| <input type="checkbox"/> (99) 不知道/拒答 | |

■■受訪者基本資料■■

C2.請問您的教育程度為何？

- | | | |
|--------------------------------------|------------------------------------|------------------------------------|
| <input type="checkbox"/> (1) 國小或以下 | <input type="checkbox"/> (2) 國(初)中 | <input type="checkbox"/> (3) 高中、高職 |
| <input type="checkbox"/> (4) 專科 | <input type="checkbox"/> (5) 大學 | <input type="checkbox"/> (6) 研究所以上 |
| <input type="checkbox"/> (99) 不知道/拒答 | | |

C3.請問您目前的職業？

- | | |
|--|--|
| <input type="checkbox"/> (1) 民意代表、行政主管、企業主管及經理人員 | |
| <input type="checkbox"/> (2) 專業人員 | <input type="checkbox"/> (3) 技術員及助理人員 |
| <input type="checkbox"/> (4) 事務工作人員 | |
| <input type="checkbox"/> (5) 服務工作人員及售貨員 | <input type="checkbox"/> (6) 農林漁牧工作人員 |
| <input type="checkbox"/> (7) 技術工及有關工作人員 | <input type="checkbox"/> (8) 機械設備操作工及組裝工 |
| <input type="checkbox"/> (9) 體力工及非技術工 | <input type="checkbox"/> (10) 學生 |
| <input type="checkbox"/> (11) 家庭管理 | <input type="checkbox"/> (12) 退休 |
| <input type="checkbox"/> (13) 無業 | <input type="checkbox"/> (65) 其他(請說明)___ |
| <input type="checkbox"/> (99) 不知道/拒答 | |

C4.請問您的婚姻狀況？

- | | |
|---------------------------------|---------------------------------|
| <input type="checkbox"/> (1) 已婚 | <input type="checkbox"/> (2) 未婚 |
|---------------------------------|---------------------------------|

(3) 離婚喪偶或分居

(99) 不知道/拒答

C5. 請問您的家庭平均一個月總收入(包括薪資、租金、投資所得、退休金等)大概多少?

(1) 無收入

(2) 3 萬元以下

(3) 3 萬~5 萬元以下

(4) 5 萬~10 萬元以下

(5) 10 萬~15 萬元以下

(6) 15 萬~20 萬元以下

(7) 20 萬元以上

(99) 不知道/拒答

C6. 請問您生病時會選擇以哪一種醫療保健方式為優先? (若受訪者無法判斷, 請追問受訪者以哪一種醫療保健方式的比例最高)

(1) 西醫

(2) 中醫

(3) 民俗療法

(4) (99) 不知道/拒答

C1. 受訪者性別(訪員自填):

(1) 男性

(2) 女性

**Consumers' Attitude toward the Consumption of Protected Wild Animal
Products in Taiwan**

Funded by Forest Bureau, Council of Agriculture, Executive Yuan

TRAFFIC East Asia—Taipei

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Abstract

Taiwan has implemented the Wildlife Conservation Act since 1989. With the effective enforcement and extensive awareness progress on the conservation knowledge, many destructive wildlife usage were no long found, such as openly slaughtered tigers on the streets and displayed and offered for sale of rhino horns and bear gall bladders in traditional Chinese medicine shops. Although the illegal trading of wildlife was significantly decreased, smuggling or the illegal sale of protected species still exist; some instances were even quite serious, in large scale, or involve endangered species. This is possibly due to the existence of the consumer market; consumers continue to demand products made from endangered species.

This study aims to systematically understand the consumption intention and the reasons of general public in Taiwan, on the products of four groups of protected species: Tiger, bear, rhinoceros, and turtle/tortoise. Consumers' concept of conservation and awareness of conservation laws are also examined. This study has adopted the computer aided telephone interview (CATI) system and focused on the products of traditional Chinese medicine and curios made from Tiger, bear, rhinoceros and turtle/tortoise.

According to the survey results, interviewees tend to use products made from Tiger, bear, rhino and turtle/tortoise for medicinal purpose than curio/decoration purpose. Interviewees who had experience and have intention in the future of purchasing curios made from Tigers, bears, rhinoceroses, or turtles/tortoises account only for 0.1% and 0.5%, respectively.

Most interviewees (96.3%) also had no experience of purchasing traditional Chinese medicine made from Tigers, bears, rhinoceroses, or turtles/tortoises, and will not consider it in the future (96.3%). Among the extremely few consumers (3.7%) who had experience purchasing traditional Chinese medicine made from Tigers, bears, rhinoceroses, or turtles/tortoises, those believing t "the treatment effect is better" have the highest percentage among purchase intentions, followed by "giving it a try out of curiosity". Among the interviewees who have future purchase intention, those believing "the treatment effect is better" also have the highest percentage. This indicates that the "possible medical effect" of traditional Chinese medicine made from protected wild animals is an important factor in attracting consumers. Regardless of whether interviewees have previous purchase experience or future intention, they support the use of substitute products (80%). Previous purchase experience and future purchase intention have no significant relation with gender, age, and education degree.

As to the conservation concept, more than 90% of interviewees think that consumption of protected animal products will have impact on the survival of the species, the ecosystem, and the international image of Taiwan. These interviewees strongly believe in the importance of protecting such species. Additionally, they maintain that habitat destruction and transformation are the most critical issue for the survival of Tigers, bears, rhinoceroses, and turtles/tortoises. The second most critical issue is consumer demanding for eating or using wild animal products.

Through a further analysis of those who previously experienced purchasing or have future intention to purchase Tiger, bear, rhinoceros, and turtle/tortoise products, non-observance of the

law, lack of a specialized responsible authority, and insufficient awareness education are also serious issues aside from habitat destruction. It's possible that wildlife consumers then think the habitat destruction is the main reason for the endangerment of these species, and that individuals' consumption habits will not gravely influence the survival of wild animals. This is the key issue in numerous environmental concerns at present, despite having the correct concepts, people still fail to properly link their behaviors with the possible impact on the environment. "Connecting personal behavior with impact on the environment" has to be the focus for future conservation awareness education.

Most people in Taiwan obtain relevant information of wild animals from TV (68.7%), followed by the Internet (13.2%). This indicates that the public tends to passively receive information "fed" by TV, and only a few interviewees would proactively search for conservation and wildlife information. Hence, the relevant authorities, conservation groups, and schools have to keep providing the conservation awareness education periodically, to avoid any gaps or inadequacy of conservation concepts before the public develops the habit of actively searching for information.

This study covered the residents of Taiwan, include Penghu, Kinmen, and Matsu Islands, as the study object. For the purpose of the telephone interview, the questions were designed with short, clear sentences that are easy to ask and understand, and have no words which need further definition. Comparative questions and word descriptions are given to replace some regulations or conservation concepts that difficult to explain in detail. The reader shall examine the wording of these questions from the perspective of the general public, not from the perspective of competent authority, legal, or conservation professionals.

Keywords

Tiger, bear, rhinoceros, turtle and tortoise, protected species, CITES, traditional Chinese medicine, curio, consumer attitude

Introduction

Taiwan has implemented the Wildlife Conservation Act for more than 20 years since its enactment in 1989. For the effective implementation of Wildlife Conservation Act, Council of Agricultural, Executive Yuan has conducted professional and specialized training to improve and enhance the enforcement capability of the government through professional training. The committee has also established units responsible for the execution of conservation work in 13 counties (cities) to enforce the Wildlife Conservation Act.

Through the efforts of competent law-enforcing authorities, scenes such as the killing of protected wild animals on the streets have become rare. This is due to the registration, verification, and inspection of protected wild animals and their products, as well as the investigation of violations of the Wildlife Conservation Act. At present, most trading of wild life in Taiwan has changed to those of species which are not quite endangered, and most animals that we do see traded are produced through artificial breeding and serve appreciation purposes (that is, they are used as pets). Aside from legal efforts, the government has also provided education to all people, strengthened regulations related to wildlife conservation, and promoted correct public awareness of the conservation concept. The conservation concept of the Taiwanese has been greatly improved through these legal and propaganda efforts.

However, numerous surveys and investigations found that the consumption of protected wildlife products is still prevalent. The World Society for the Conservation of Animals investigated the global illegal trading of bear gall products in 2002. Inspectors looked into 201 Chinese medicine dealers in Taiwan and found that about 30.4% of them still sell bear gall products. Approximately 3,000 Chinese medicine dealers in Taiwan were found to have engaged in transactions involving bear gall products. In August 2006, the Jinmen Coast Guard seized a large batch of freshwater turtles captured in Taiwan for smuggling to the mainland. In June 2007, Taipei Customs seized a suspected horn of a protected rhinoceros that was imported without proper authorization. In July 2010, authorities seized bears hunted by local restaurant operators and smuggled bear claws for the so-called bear claw banquet. All these activities not only endangered the survival of protected wildlife, but also smeared the international image of Taiwan.

The committee surveyed retail shops selling Chinese medicines and curios on August–September 2009 to understand their attitude toward protected animal products, such as those from tigers. Up to 4% of the interviewed Chinese medicine dealers confirmed the supply of tiger bone products. A few dealers said that some customers bring tiger testes and penises, purchased from China and carried secretly to Taiwan, to be verified. Verifying the authenticity of such products is difficult due to lack of laboratories and the abundance of counterfeit products in the market. Whether they are real or counterfeit, the transaction, supply, or smuggling of such products indicate the existence of a consumer market for endangered protected animals.

To directly understand the public consumption and the potential consumers of protected wildlife products, this survey systematically examines Taiwanese consumers' intention to use protected

animal products, the source of such products, the public's conservation concept, and awareness of conservation laws. This helps find critical groups of population and, thus, make propaganda effective.

In light of the diversity of wild life products, the great disparity in usage purchase and reason, the validity of questionnaires, and the period and degree of sophistication that can be tolerated by the interviewees, this study takes wild life species that are used or will continue to be used as medicine, including tigers, bears, rhinoceros, and turtles/tortoises as the study object. To confirm the usage method and reason of the Taiwanese on tigers, bears, rhinoceros, and turtles/tortoises in question, and whether they are changed from the traditional usage as medicine to the new usage as curios similar to neighboring countries, the experience of using them as curios is added into the study. Other species and usage method, including live parrots as pets or products made from reptiles, are not included in this study and discussion.

Methodology

This survey is divided into two parts. The first part seeks to understand the public's behavior and intention to consume protected wildlife, including tiger, bear, rhinoceros, and turtle/tortoise. The participants were asked about their experience and future intention to purchase Chinese medicines made from protected wildlife, such as tiger bone jelly, tiger bone liquor, tiger bone paste, bear gall powder, bear bile, rhinoceros horn (powder), turtle/deer jelly, and turtle jelly, as well as curios like tiger carpet and rhinoceros horn artifacts. The second part of the survey attempts to understand the public concepts of conservation and medication in Taiwan.

The subjects of this survey include adults over the age of 20 years, and who are from 21 counties and four cities (Taipei, Kaohsiung, Jinmen, and Lianjiang) in Taiwan. The survey aims to understand the public's awareness of protected wildlife, and determine the differences among consumers with varying experiences or future intentions with regard to the concepts of Chinese medication and conservation. This survey has excluded those engaging in Chinese medicine or wildlife conservation to avoid any deviation. Interviews were conducted through the computer assisted telephone interview (CATI) system for three reasons: (1) to obtain more samples from limited sources; (2) to take advantage of the telephone interview's high degree of anonymity, its suitability for sensitive issues, and its capacity to reduce interviewees' refusal ratio; and (3) to harness CATI system's power to design a random rotation of questions and to reduce interviewees' tendency to deviate from their answers.

By considering both quality and efficiency, CATI system could standardize the interview process, set the sequence of questions, trip questions, and so on. The investigator only needs to dial a phone number and interview according to the screen instructions, and then check the answers based on the replies of interviewees. Data are entered into the computer after the interview to reduce the chance of file error and to ensure survey quality.

As for the sampling plan, this survey adopts the tiered random sampling method for general

inference and analysis. The entire Taiwan is divided into 25 tiers based on counties and cities. The number of samples is increased to 30¹ for counties and cities with a small sample size. Samples from other counties and cities are distributed according to the matrix ratio. Moreover, on the basis that each interviewee has the same chosen rate, the inbuilt “Town Area Code in Tainan Area” is adopted for tiered random sampling. A suitable number of the first 3–4 digits are chosen among people above the age of 20 years in a given town. For example, the first four digits of Da’an District in Taipei include 2325, 2755, etc. The second step is to generate the last four digits by the random sequencing of all chosen first four digits. Such a sampling method could cover all household telephone subscribers in Taiwan, overcoming the insufficient coverage of directory sampling.

This survey was carried out on July 22–August 3, 2010. A total of 1,131 valid samples were collected during nine days of interviews (excluding holidays). Assuming the degree of confidence is 95%, the sampling error is $\pm 2.91\%$.

After the survey, the representativeness of samples for a given county/city, gender, or age bracket is verified to determine the conformity between the sample structure and the matrix. If this cannot be achieved, the repeated weighting of multiple variables for item-wise weighting based on the sequence of region, gender, and age will be adopted. This is to ensure conformity between the sample and matrix structure. The sample structure resulting from the repeated weighting of multiple variables is shown below.

Table a. Verification of gender samples (after weighting)

Gender	Sample		Matrix	Verification result
	Number	Percentage	Percentage	
Male	565	50.0	49.7	P>0.05 The sample is consistent with the matrix.
Female	566	50.0	50.3	
Total	1,131	100.0	100.00	

Table b. Verification of age samples (after weighting)

Age	Sample		Matrix	Verification result
	Number	Percentage	Percentage	
20 to 29	223	19.7	19.7	P>0.05 The sample is consistent with the matrix.
30 to 39	241	21.3	21.3	
40 to 49	239	21.1	21.1	
50 to 59	210	18.6	18.6	
60 and above	218	19.3	19.3	
Total	1,131	100.0	100.0	

Table c. Verification of country/city sample (after weighting)

¹ Areas subject to supplement of samples include the counties of Yilan, Xinzhu, Miaoli, Nantou, Yunlin, Jiayi, Taidong, Hualian, Penghu, Jinmen, and Lianjiang, and the cities of Jilong, Xinzhu, Jiayi, and Tainan.

County/city	Sample		Matrix	County/city	Sample		Matrix	Verification result
	(Number)	(%)	(%)		(Number)	(%)	(%)	
Taipei County	186	16.5	16.9	Taidong County	13	1.2	1.0	P > 0.05 The sample is consistent with the matrix.
Yilan County	22	1.9	2.0	Hualian County	16	1.4	1.5	
Taoyuan County	90	8.0	8.3	Penghu County	7	0.6	0.4	
Xinzhu County	22	2.0	2.1	Jilong City	21	1.9	1.7	
Miaoli County	26	2.3	2.4	Xinzhu City	22	1.9	1.7	
Taizhong County	72	6.3	6.6	Taizhong County	51	4.5	4.5	
Zhanghua County	64	5.6	5.6	Jiayi City	14	1.2	1.2	
Nantou County	26	2.3	2.3	Tainan City	38	3.3	3.3	
Yunlin County	33	3.0	3.2	Taipei City	140	12.3	11.5	
Jiayi County	26	2.3	2.4	Kaohsiung County	75	6.6	6.7	
Tainan County	57	5.1	4.9	Jinmen County	7	0.6	0.4	
Kaohsiung County	60	5.3	5.5	Lianjiang County	1	0.1	0.1	
Pingdong County	42	3.8	3.8	Total	1,131	100.0	100.0	

As to data processing, the answers of some interviewees are not included in the “choices” set out in the questionnaire; instead, they are summarized as “other” in the survey. These are further sorted in subsequent data processing. If more than 1% of answers belong to the same nature, they will be re-coded. Such choices will be singled out and their difference from the choices in the questionnaire will be analyzed. As to data analysis, major analytic methods are used, such as frequency distribution and cross analysis.

Results and Discussion

Consumers’ experience in and attitude toward the consumption of traditional Chinese medicines

Experience in and attitude toward the consumption of traditional Chinese medicines made from Tiger, bear, rhinoceros, and turtle/tortoise

According to the survey results, 10.8% of interviewees said that their friends or families once bought Chinese medicines made from tiger, bear, rhinoceros, turtle, tortoise, etc. Medicines in the category of turtle and tortoise were the most referenced, including turtle/deer jelly, turtle/deer paste, and turtle jelly. Tiger bone medicine was the second most referenced medication, including tiger bone jelly, tiger bone paste, tiger bone ointment, and tiger testes and penis.

Only 3.7% (n=42) of the interviewees said that they once purchased Chinese medicine made from tiger, bear, rhinoceros, turtle/tortoise, etc. Medicines in the category of turtle/tortoise received the highest number of answers (66.9%, n=28); tiger bone medicine garnered the second highest number of answers (26.2%, n=11).

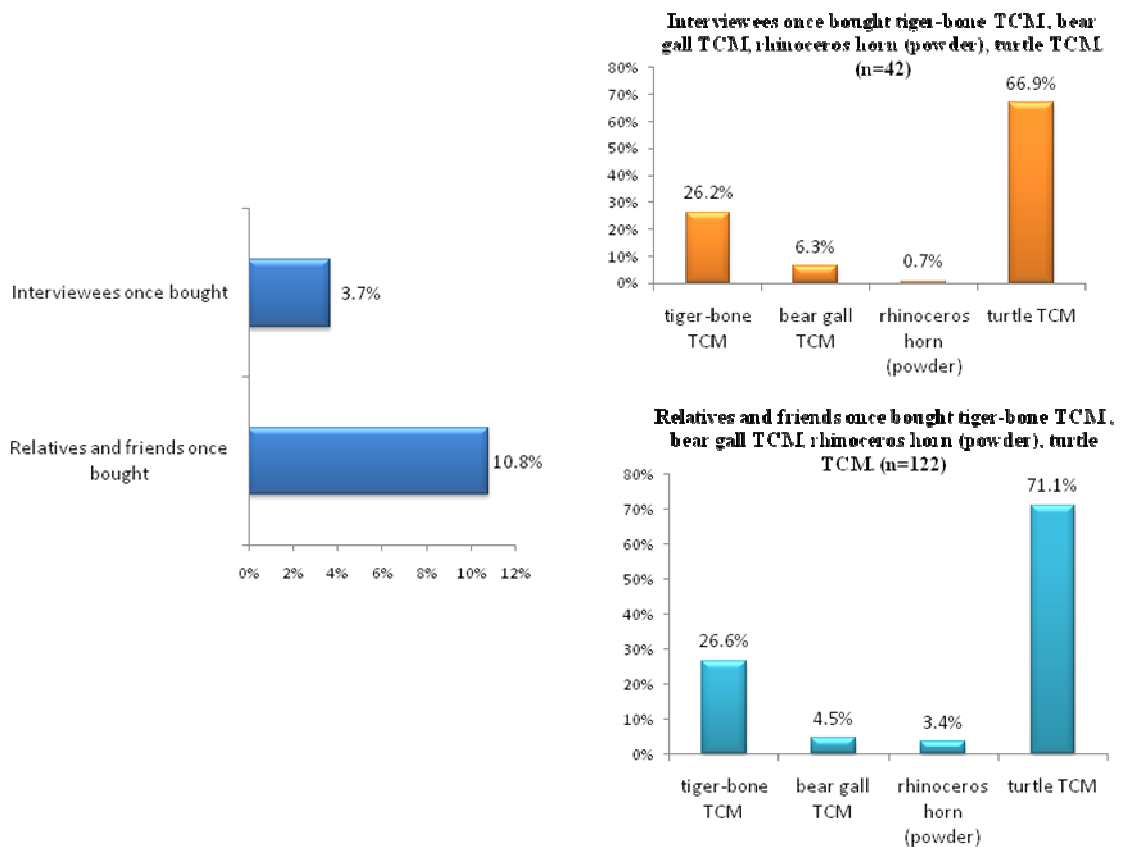


Fig. 1. Interviewees' experiences in the purchase of Chinese medicines with tiger bone, bear gall, rhinoceros horn, and turtle/tortoise ingredients (Q1, Q2)

Interviewees with purchase experiences have various motives (n=42), such as “believing that Chinese medicines made from tiger, bear, rhinoceros, and turtle/tortoise have a better treatment effect” (35.7%), and “giving it a try out of curiosity” (26.2%) (Fig. 2).

Treatment effectiveness as a motive to buy such Chinese medicines does not come as a surprise. What comes as a surprise is the consumers' “curiosity” to buy medicines made from protected animals in the abovementioned four categories.

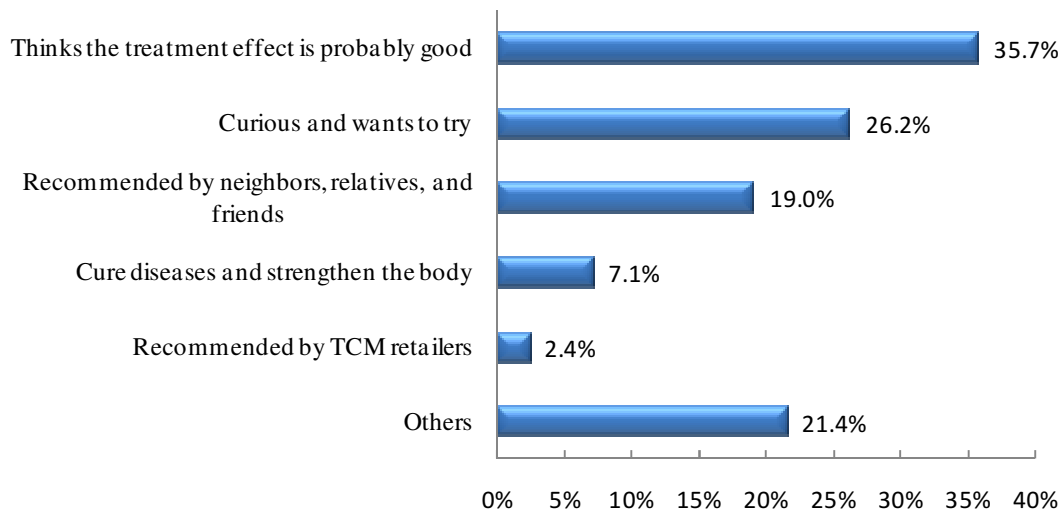


Fig. 2. Interviewees' motives for the purchase of Chinese medicines with tiger bone, bear gall, rhinoceros horn, and turtle/tortoise ingredients (Q3, n=42)

Although 58.0% of interviewees think that using Chinese medicine made from tiger, bear, rhinoceros, and turtle/tortoise is a tradition (Q17), only 19.9% of them believe that Chinese medicine with ingredients from the abovementioned four categories of protected animals have certain medical values. On the other hand, 49.1% of interviewees hold a negative attitude (Q4). Meanwhile, 71.2% of interviewees think that the effectiveness of Chinese medicine made from these protected animals only has a psychological function (Q20) (Fig. 3).

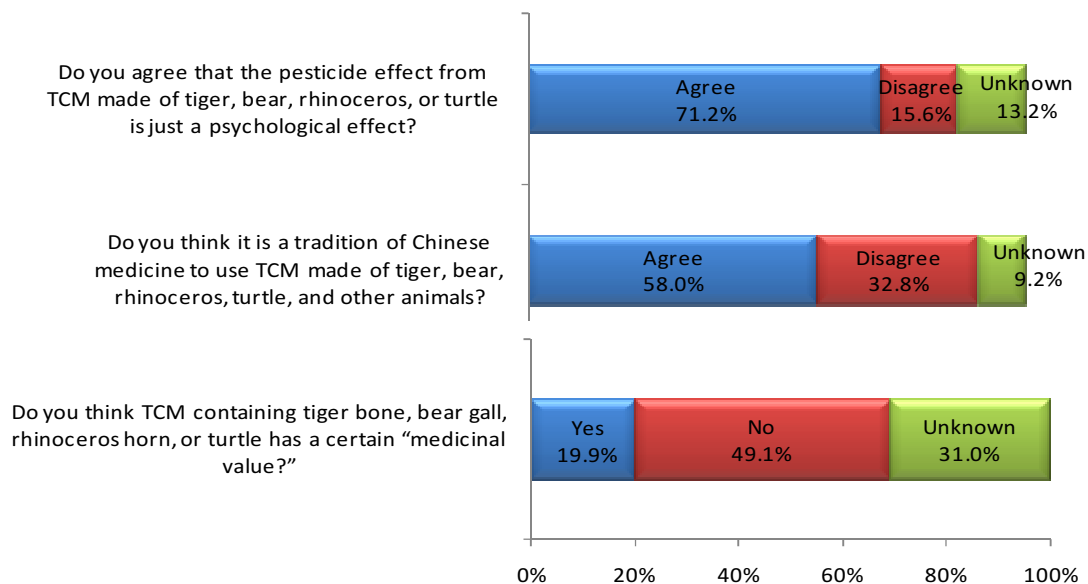


Fig. 3. Interviewees' attitudes toward Chinese medicines made from tiger, bear, rhinoceros, and turtle/tortoise (Q20, Q17, Q4, n=1,131)

Up to 45.8% of interviewees believe that Chinese medicines made from tiger, bear, rhinoceros,

and turtle/tortoise could be used under controlled conditions (Q18). Meanwhile, 79.6% think that substitutes are acceptable if the number of wildlife colonies is inadequate (Q19); and 47.6% believe that these Chinese medicines could be substituted by medication with similar or partially similar effects (Q7) (Fig. 4), such as replacing animal medicines with botanical medicines; making up for insufficient nutrition with healthy, nourishing food; gaining nourishment from daily food; seeing Western doctors; and replacing the ingredients from protected animals with those from unprotected species. Only 8.7% of interviewees think that medicine made from protected wildlife cannot be replaced. The interviewees have no statistic significance on whether there are substitutes (Q7) and medical habits (C6).

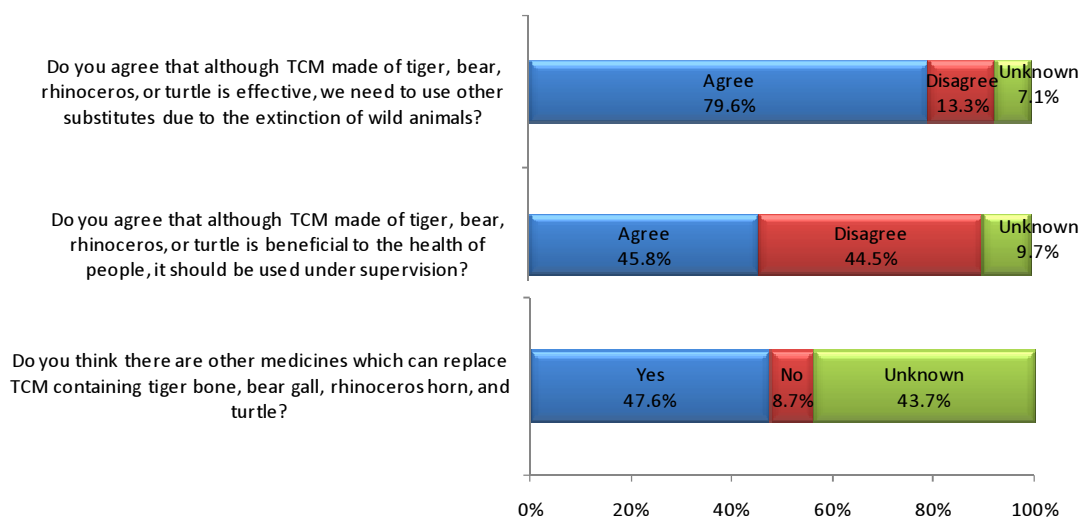


Fig. 4. Interviewees attitudes toward Chinese medicines made from tiger, bear, rhinoceros, and turtle/tortoise (Q18、Q19、Q7, n=1,131)

Future intention on consumption of traditional Chinese medicines of Tiger, bear, rhinoceros, and turtle/tortoise

When interviewees were further asked about their intention to buy Chinese medicines made from tiger, bear, rhinoceros, and turtle/tortoise, 96.3% of them answered negatively (Q5); only 2.8% (32 interviewees) expressed their intention to buy. The purchase motive of “believing that the effect maybe better” had the highest percentage (49.0%), way ahead of two other motives: “thinking that the treatment effect is better after usage” (13.2%), and “doctor’s recommendation” (11.3%) (Q6). About half of the interviewees considering future purchase based their decision on their subjective feelings, not on experience or professional recommendation.

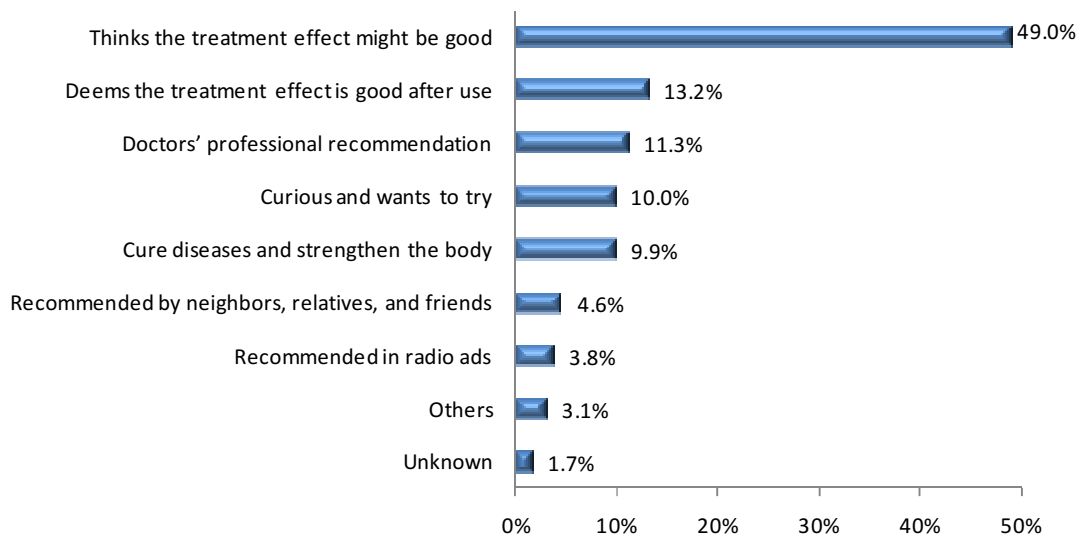


Fig. 5. Interviewees' future intention to buy Chinese medicines with tiger, bear, rhinoceros, and turtle/tortoise ingredients (Q6, n=32)

A cross comparison of groups that once purchased and that might make a future purchase was performed. Among the interviewees (3.7%, n=42) who once purchased Chinese medicine with tiger, bear, rhinoceros, and turtle/tortoise ingredients, 26.2% (n=11) expressed that they will consider purchasing in the future (Fig. 6). Only 2% (n=21) who have not yet made any purchase of such Chinese medicine said they might consider purchasing in the future (Fig. 6). Thus, although a large portion of the population did not purchase or use Chinese medicine in the categories of tiger, bear, rhinoceros, and turtle/tortoise, if the situation changes and only an extremely small portion of the population changes its purchase intention, then there is still a certain number of actual consumers. This will create an apparent influence on the already rare tigers, bears, and rhinoceroses.

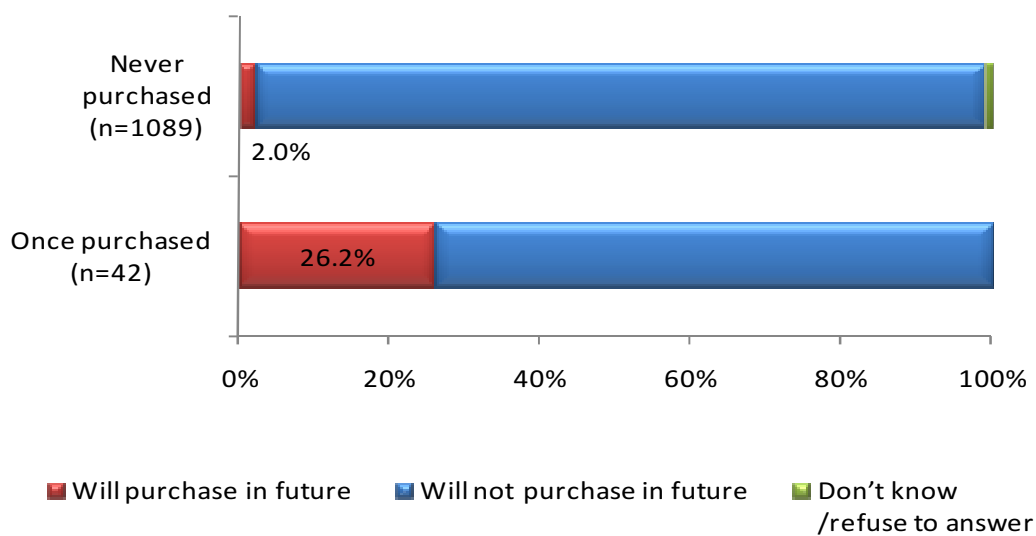


Fig. 6. Potential consumers of Chinese medicine that contain ingredients of tigers, bears, rhinoceros, or turtles/tortoises (Q2, Q5, n=1, 131)

Results of the cross analysis indicate that past purchase experience and future purchase intention have no correlation with gender, age, and education degree, and have no significant difference with the medical habit (C6). By comparing future purchase intention and annual family income (C5), it is found that there is no significant difference. More studies are needed to reach a clear conclusion because only an extremely small portion of the population has the intention to buy Chinese medicine made of tigers, bears, rhinoceros, or turtles/tortoises.

Among interviewees considering to purchase Chinese medicines made from the abovementioned four categories, 75.8%(=39.4%+36.4%) believe that the use of “Chinese medicine made from tiger, bear, rhinoceros, and turtle/tortoise has been the tradition.” This is higher than the proportion that does not consider purchasing in the future (57.5%=17.7%+39.8%) (Table 1). The percentage of interviewees (65.6%) who think that “Chinese medicines with tiger bones, bear galls, rhinoceros horn, and turtle/tortoise ingredients have certain medical values” is higher than those who will not consider such medicines in the future (18.5%). The percentage of interviewees (50%) who think that “Chinese medicines made from tiger, bear, rhinoceros, and turtle/tortoise only have a psychological function” is lower than those who will not consider purchasing in the future (71.8%).

Table 1. Cross matching of future purchase intention and traditional medicine concepts

Q17 Whether the use of Chinese medicines made from tiger, bear, rhinoceros, and turtle/tortoise has been the tradition (%)							
Future purchase intention	Totally agree	Agree	Not quite agree	Totally disagree	Don't know /refuse to answer	Total	p-value
Consider to buy in future	39.4	36.4	15.1	9.1	0.0	100.0	X ² =15.84
Don't consider to buy in future	17.7	39.8	17.5	15.6	9.4	100.0	7
Don't know/refuse to answer	11.1	44.5	22.2	0.0	22.2	100.0	P<0.05
Q20 Whether the effect of Chinese medicines made from tiger, bear, rhinoceros, and turtle/tortoise is only psychological (%)							
Future purchase intention	Totally agree	Agree	Not quite agree	Totally disagree	Don't know /refuse to answer	Total	p-value
Consider to buy in future	21.9	28.1	37.5	9.4	3.1	100.0	X ² =33.18
Don't consider to buy in future	39.2	32.6	11.5	3.3	13.4	100.0	1
Don't know/refuse to answer	11.1	55.6	0.0	0.0	33.3	100.0	P<0.05
Q4 Whether Chinese medicines with tiger bone, bear gall, rhinoceros, and turtle/tortoise ingredients have certain medical values (%)							
Future purchase intention	Yes	No	Don't know /refuse to answer	Total	p-value		
Consider to buy in future	65.6	12.5	21.9	100.0	X ² =49.97		
Don't consider to buy in future	18.5	50.5	31.0	100.0	7		
Don't know/refuse to answer	33.3	11.1	55.6	100.0	P<0.05		

With regard to the inclination to consume Chinese medicines with tiger, bear, rhinoceros, and turtle/tortoise ingredients, although a majority of interviewees (58%) believe that the use of Chinese medicines with ingredients from protected wildlife has been the tradition (Q17), only about 20% think that such medicines have certain medical values (Q4). Meanwhile, 71% indicate that medicines with ingredients from protected wildlife only have a psychological function (Q20). Up to 79.6% do not believe that only medicines with ingredients from protected wildlife could cure diseases and strengthen the body, further expressing that these could be replaced by medicines or therapies with similar or partially similar effects (Q19).

Some consumers who still have purchase intentions recognize the tradition of using Chinese medicines. However, they choose not to buy such medicines with tiger, bear, rhinoceros, and turtle/tortoise ingredients. Medical effectiveness is the key to their choice. On the other hand, consumers who still have usage intention have a subjective recognition of the medical effectiveness. In addition, they do not even refer to past experience or doctors' professional recommendation. Meanwhile, a large portion of interviewees agree with "avoiding the use of Chinese medicines with tiger, bear, rhinoceros, and turtle/tortoise ingredients or using substitutes" according to traditional Chinese medicine.

Consumer experience in and attitude toward the consumption of curios

With regard to the consumption of curios made from tiger, bear, and rhinoceros, 1.2% of the interviewees said that their friends and families once purchased curios made from protected wildlife. These include tiger carpet, leather coat, and rhinoceros horn (Q8). Only 0.1% (n=1) indicated he/she once purchased seals made from protected wildlife (Q9) (Fig. 7).

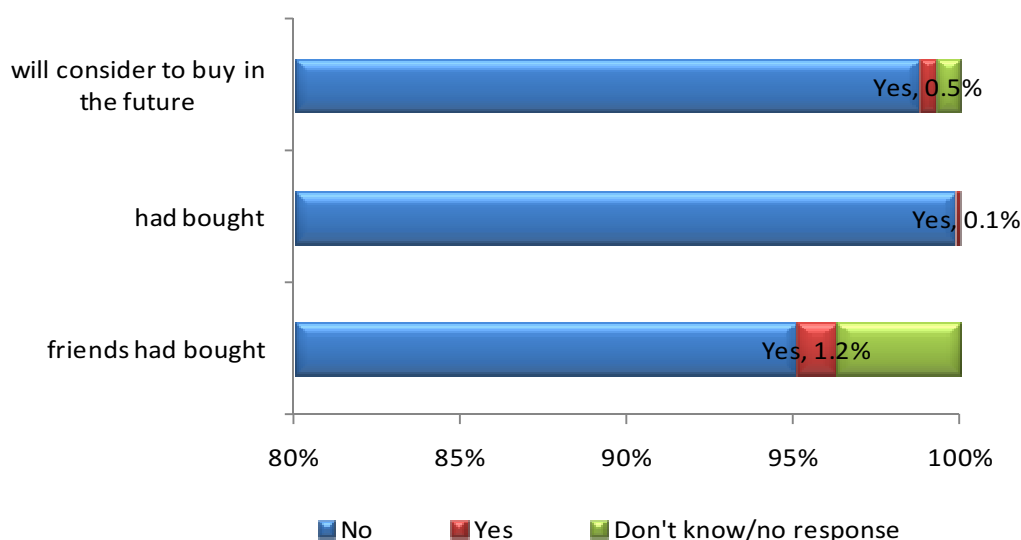


Fig. 7. Interviewees' experience and intention toward consumption of curios made from tiger, bear, and rhinoceros past and future (Q8, Q9, Q11, n=1,131)

With regard to future purchase intention, 98.8% of interviewees revealed that they will not consider it. On the other hand, 0.5% said that they will consider purchasing such articles(Q11), including tiger skin, tiger head, and tiger testes and penis. Their purchase motives include style preference, recommendation by friends, and needs of family or friends(O12).

In contrast with Chinese medicine, it is surprising that only 0.1% interviewees have purchase experience, and a small percentage of interviewees will consider purchasing in the future (0.5%), but with an upward trend.

Consumers' conservation concept and attitude

The sustainable survival of wild animals and plants has been threatened to varying degrees by excessive hunting. To maintain the sustainable survival of the wild colonies of species and to balance the ecological environment, the world has been striving to conserve and restore animals that on the verge of extinction. Aside from accurate and appropriate academic studies, the key success factors in the implementation of a state's conservation work are state policy and laws and their effective enforcement; correct and appropriate knowledge and attitude held by the public toward conservation; and making smart choices when conservation needs conflict with the benefits .

The concept of conservation among the Taiwanese has greatly improved through the continuous efforts of the government, schools, and conservation organizations. What, exactly, can they say about the influence of their behavior on protected species?

Consumers' awareness of conservation regulation

Interviewees have certain awareness of protected species. A total of 44.5% are aware that eight animal species (tiger, bear, rhinoceros, armadillo, sea turtle, leopard, big nose antelope, and elephant) are protected, whereas 75.1% know at least six animal species are protected (Fig. 8 Q13).

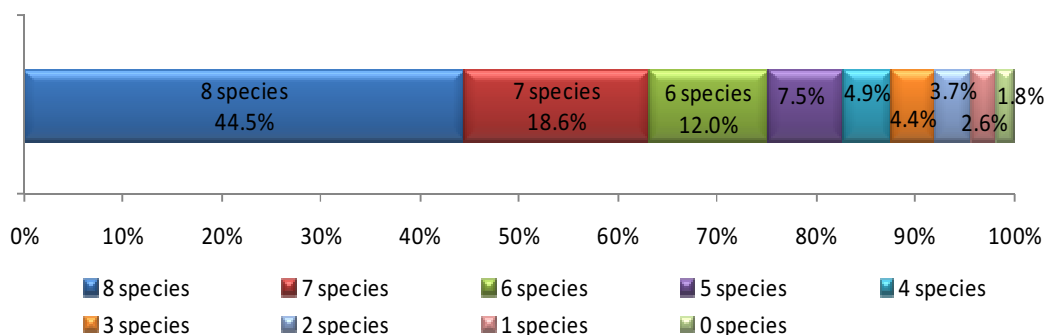


Fig. 8. Interviewees' awareness of protected animals and accumulated percentage (Q=13, n=1, 311)

The percentage of interviewees who are aware that bears are protected animals is the highest (89.8%), followed by rhinoceros (86.4%). The percentage of interviewees who believe that elephants are protected animals is the lowest (65.3%), followed by saiga Tatarica (69.3%)(Fig.9). Only 1.8% do not know which particular animals are protected. Among these interviewees who cannot identify any of the eight protected animals, the percentage of those above 60 years old is the highest (66.7%). As to educational attainment, the percentage of interviewees who only finished primary school or have inferior education is the highest (40.9%), followed by those who completed junior high school (31.8%). As to the vocational category, the percentage of retired employees is the highest (55%), followed by family management (20%).

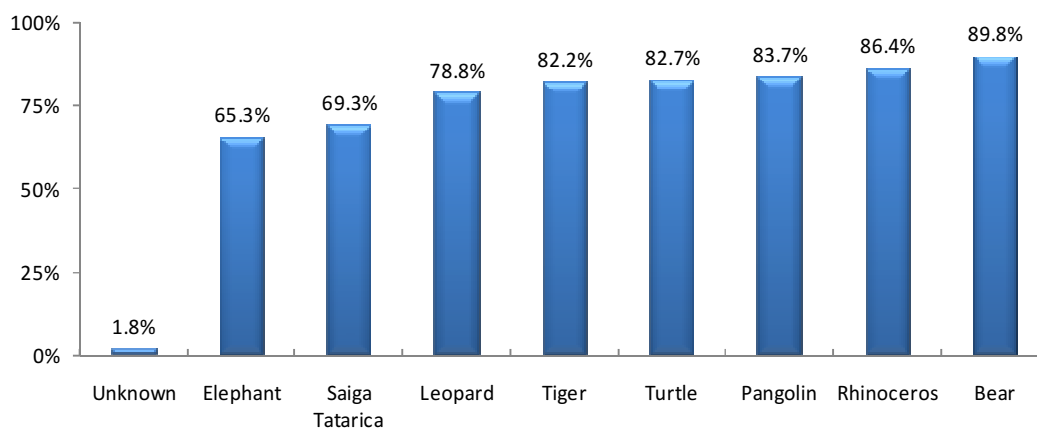


Fig. 9. Percentage of interviewees who are aware of protected animals

The interviewees' recognition of bears as protected species may be related to the news about the so-called "bear claw banquet" in Jiayi, Taiwan (July 31, 2010). Approximately 75%–95% of interviewees knew bears as protected wild animals before the news report; the proportion increased to 88.4%–100% after that. Note that the news outbreak happened near the end of the survey, and the interviewees were all from the outer island area. Hence, the percentage of interviewees who are aware that bears are protected animals is only for reference. Meanwhile, the second-place ranking of the rhinoceros as a protected species is possibly related to the rhinoceros horn incident in Taiwan. Ranking from third to fifth are the pangolin, turtle, and tiger, respectively (82.2%–83.7%, with a slight difference). Thus, it cannot be interpreted that the interviewees who know that the pangolin is a protected species outnumber those who are aware that the tiger is a protected animal.

As to the leopard and the tiger, although the number of interviewees who know that the leopard is a protected animal (78.8%) is less than those who know that the tiger is a protected species (82.2%), this result is already better than our other study on Chinese medicine dealers. Based on the interviews with retailers in 2009, 97% of Chinese medicine dealers said they know the tiger as a protected species; however, only 3% know that the leopard is a protected animal.

Surprisingly, only 65.3% of interviewees are aware that the elephant is a protected species. Is this related to the confusion surrounding "conservation equals complete prohibition," and to the fact

that registered ivory products could be legally transacted in Taiwan? This needs further study. However, if the disparity between the interviewees' and the public's awareness of protected species is caused by the confusion surrounding "conservation equals complete prohibition," then this might indicate that conservation education and propaganda in Taiwan has a better effect on reducing cost, but not thoroughly enough. Such confusion might impede the implementation of further conservation work. For example, species that are not on the verge of extinction but subject to control need regulations with a slight difference, instead of complete prohibition.

According to Article 35 of the Wildlife Conservation Act, protected wild animals (including tiger, bear, rhinoceros, turtle, and tortoise) and their products shall not be sold or exhibited in public spaces unless otherwise agreed by competent authority. "Protected animals" refer to species as set out in Article 4 of the Wildlife Conservation Act. Article 55 also identifies the artificially bred and propagated animal species that are subject to the Wildlife Conservation Act. Individual species like the tiger, bear, and rhinoceros shall be managed under Articles 35 and 55 of the Wildlife Conservation Act. The transaction and exhibition (in public spaces) of tigers, bears, rhinoceroses, and their products, both wild and artificially bred, shall be managed under the Wildlife Conservation Act.

The situation of the turtle/tortoise category is different. This category covers various species that belong to different levels of conservation. Some turtle/tortoise species are not controlled by Convention on International Trade in Endangered Species (CITES) or the Wildlife Conservation Act. As regards those controlled by CITES or the Wildlife Conservation Act, their artificially bred offspring are not controlled under the Wildlife Conservation Act. For example, many species of turtles and tortoises in Annex II of CITES are not controlled by Article 55 of the Wildlife Conservation Act. Among freshwater turtles like the Asian genus *Cuora* (*Cuora* spp) in Annex II of CITES, only the margined Box Turtle (*Cuora flavomarginata*) is listed in the protected category of the Wildlife Conservation Law. However, such turtles that are artificially bred are not controlled by Article 55. As shown in Fig. 10, the percentage of interviewees believing that Taiwan adopts special control over transactions involving wild bear products is the highest (77.6%), followed by wild tiger (75.2%) and wild rhinoceros (75.1%) products. Only 60.3% think that Taiwan has special control over transactions involving wild turtle and tortoise products. The percentage of interviewees believing that Taiwan adopts special control over transaction involving artificially bred tiger products is the highest (57.9%), followed by artificially bred bear products (57.4%). A total of 55.8% think that the transaction of products from artificially bred rhinoceros is controlled; on the other hand, the percentage of interviewees who are aware of special control over products from artificially bred turtles or tortoises is the lowest (38.9%).

As a whole, the interview result reflects the difference in controlling transactions involving tigers, bears, and rhinoceroses in contrast with those involving turtles/tortoises. The results also reflect the general public's misunderstanding that artificially bred and wild tigers, bears, and rhinoceros are subject to a different extent of transaction control. This indicates that interviewees are unfamiliar with, or have an incomplete understanding of, the regulations about protected animals, which also leads to different expectations on the control of wild and artificially bred animals.

Some interviewees are completely ignorant of the Wild Animal Conservation Act. A total of 17.3% of interviewees are unsure or do not think that the government has adopted special control over transactions involving wild tigers, bears, rhinoceroses, and turtles/tortoises. Up to 32% are not clear or do not think that the government has adopted special control over transactions involving artificially bred tigers, bears, rhinoceroses, and turtles/tortoises.

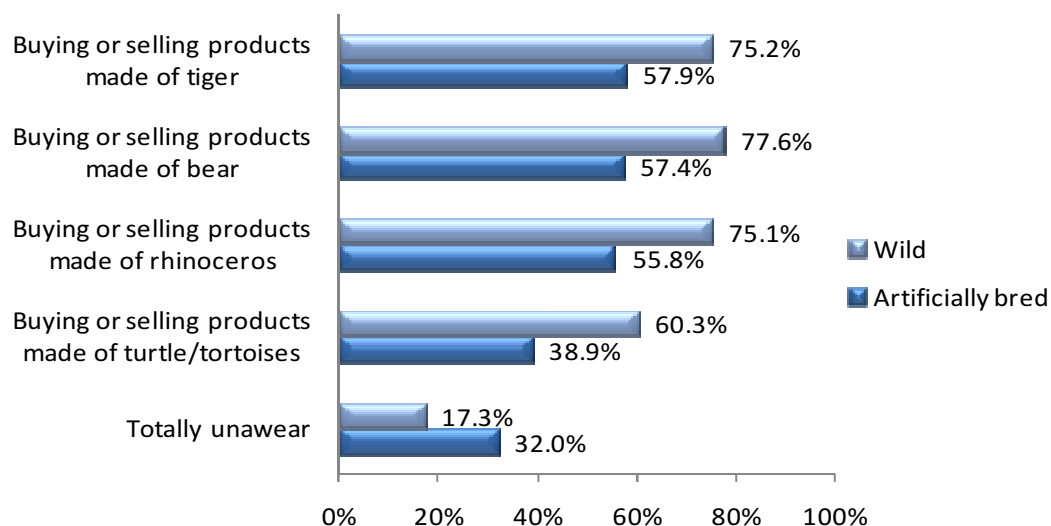


Fig. 10. Interviewees’ awareness of the special control of tigers, bears, rhinoceroses, and turtles/tortoises in Taiwan (Q22-1, Q22-2, n=1, 131)

Through cross analysis on the recognition of protected wildlife (Q13) and the basic profile, the recognition of protected wildlife was found to have significant disparity depending on age and degree of education. As to age, those above 60 years old have the highest percentage (6.4%) of interviewees who have no idea about which species are protected wildlife (0 correct answer) at all. As to education degree, those with primary school or lower education have the highest percentage of interviewees who have 0 correct answers (11.1%), followed by middle school (7.8%) (Fig.11). Those with graduate or higher degrees have the highest percentage of interviewees who answer all questions correct (8 correct answers) (59.5%). Other groups, regardless of age or education degree, have 40%–47% interviewees who answer all questions correct.

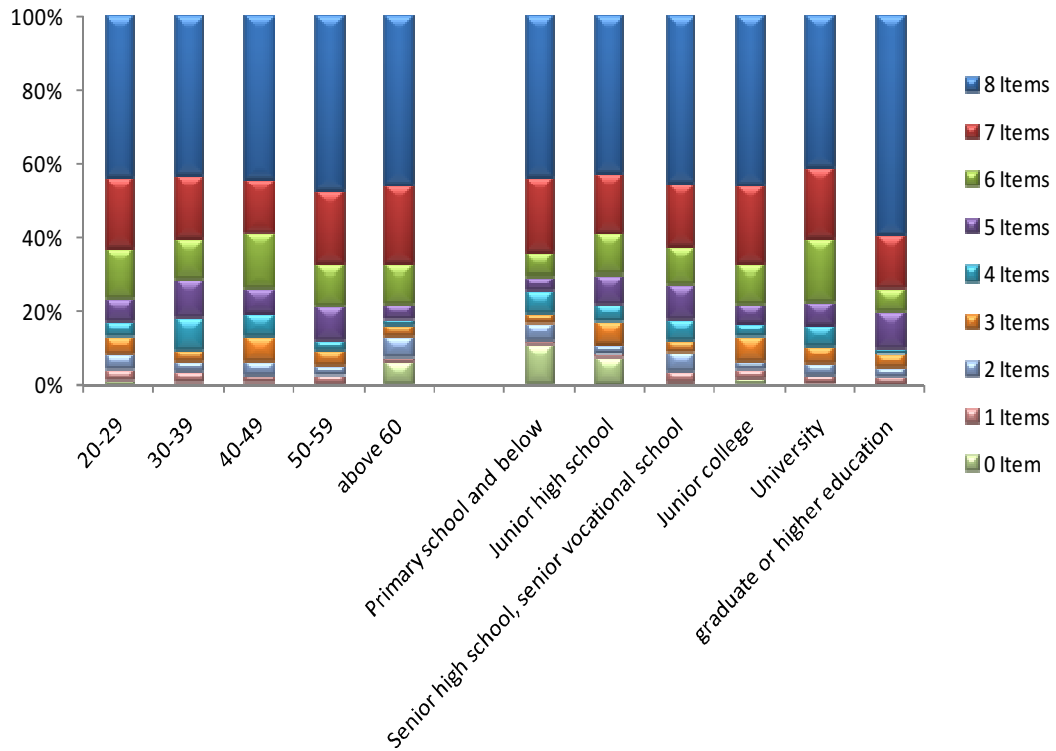


Fig. 11. Basic profile and recognition on protected wildlife (Q=13, n=1,131)

Recognition of transaction laws about protected wildlife (Q22-1, Q22-2) is irrelevant with age, but significantly different depending on education degree. Those with primary school or lower education have the highest percentage of interviewees who do not know such conservation regulations at all (0 correct answers) (28.7%). Those with graduate or higher education have a higher percentage of interviewees who answer all questions correct (33.3%); interviewees with high school and junior college education also have good performance (Fig. 12).

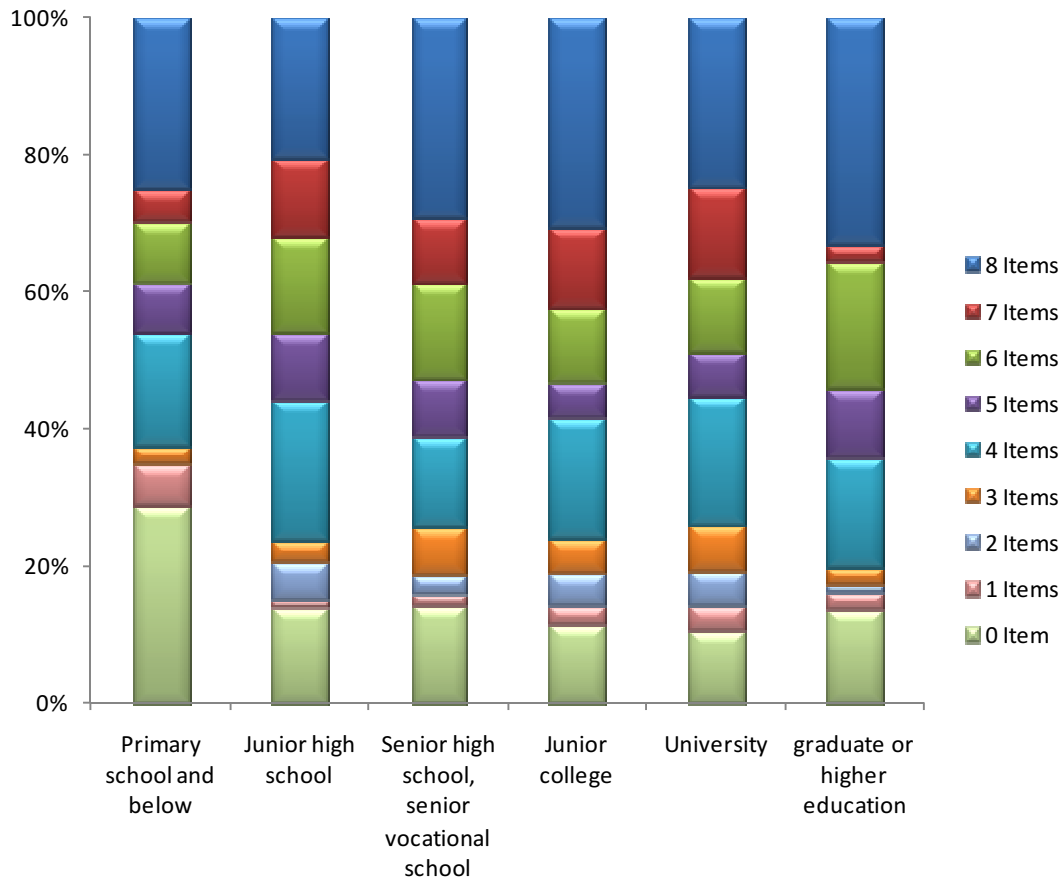


Fig. 12. Basic profile and recognition of control regulations (Q22-1, Q22-2, n=1, 131)

Consumers' conservation concept

According to Fig. 13, more than 90% of interviewees think that Chinese medicines or curios made from tiger, bear, rhinoceros, and turtle/tortoise would impact the survival of such species (97.3%, Q14). These would even impact the ecological balance (93.4%, Q15), and negatively influence the international image of Taiwan (95.4%, Q16).

95.2% interviewees think that it is important to protect tigers, bears, rhinoceroses, turtles, and tortoises whose survival is affected (77.2% admit that it is quite important, whereas 18% believe that it is important) (Fig. 21, 14).

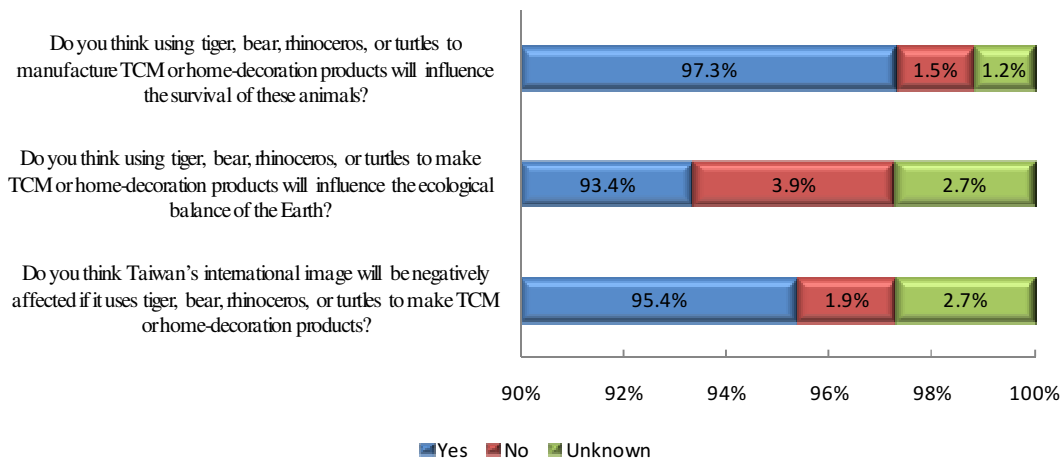


Fig. 13. Influence of the use of tiger, bear, rhinoceros, and turtle/tortoise products according to Taiwanese interviewees (Q14, Q15, Q16, n=1311)

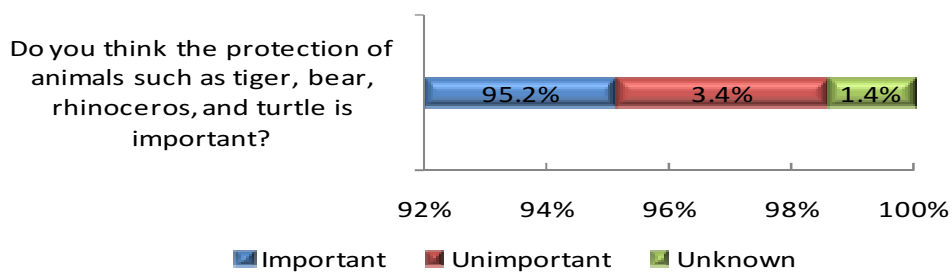


Fig. 14. Interviewees' perception of the importance of protecting tigers, bears, rhinoceroses, and turtles/tortoises (Q21, n=1311)

When Taiwanese interviewees were asked about whether Chinese medicines made from tiger, bear, rhinoceros, and turtle/tortoise could cure diseases and, hence, are helpful but must be used under control, 45.8% of them agreed, whereas 44.5% did not agree. When asked, “Could Chinese medicines made from tiger, bear, rhinoceros, and turtle/tortoise cure diseases, but use substitutes due to the inadequate number of wild animals?” 79.6% of them agreed, whereas 13.3% did not agree.

The percentage of interviewees who express their agreement with the abovementioned questions is lower than that of interviewees who think that Chinese medicine and curios made from tiger, bear, rhinoceros, and turtle/tortoise will impact their survival, the ecological balance, and the international image of Taiwan. In particular, when asked about whether the use of Chinese medicines made from these animals should be controlled, the percentages of those who agreed and did not agree are similar. Such a response possibly indicates that although interviewees think that the consumption of tiger, bear, rhinoceros, turtle, and tortoise for human needs will have a negative impact, they are hesitant to choose between curing diseases and conservation. Given the option of substitutes, most interviewees happily accept.

Critical issues confronted by Tigers, bears, rhinoceroses, and turtles/tortoises

The sustainable survival of wildlife colonies has been facing various threats, including damage to habitat, excessive hunting, climate change, and inadequate management. This study has summarized the issues confronted by protected animals, such as serious damage to or change of habitat; lack of responsible authorities; non-observance of the law; the Taiwanese locals' preference for eating or using wildlife products; inadequate education or propaganda; and climate change. When Taiwanese interviewees were asked about critical issues confronted by tigers, bears, rhinoceroses, turtles and tortoises, the percentage of interviewees believing that serious damage to or change of habitat as the most critical is the highest (31.6%), followed by preference for eating or using wildlife products (19.7%). Interviewees also think that non-observance of the law (13.9%) and inadequate education or propaganda (13.3%) are major issues (Fig.15).

Among interviewees who gave different answers other than the abovementioned responses, 1.6% think that the most critical issue confronted by tigers, bears, rhinoceroses, turtles, and tortoises is that they are “on the verge of extinction.” Another 1.4% of interviewees believe that the most critical issue is excessive hunting. Although these interviewees failed to accurately describe the issues confronted by tigers, bears, rhinoceroses, turtles, and tortoises, most of them are aware that the number of these animals is indeed decreasing.

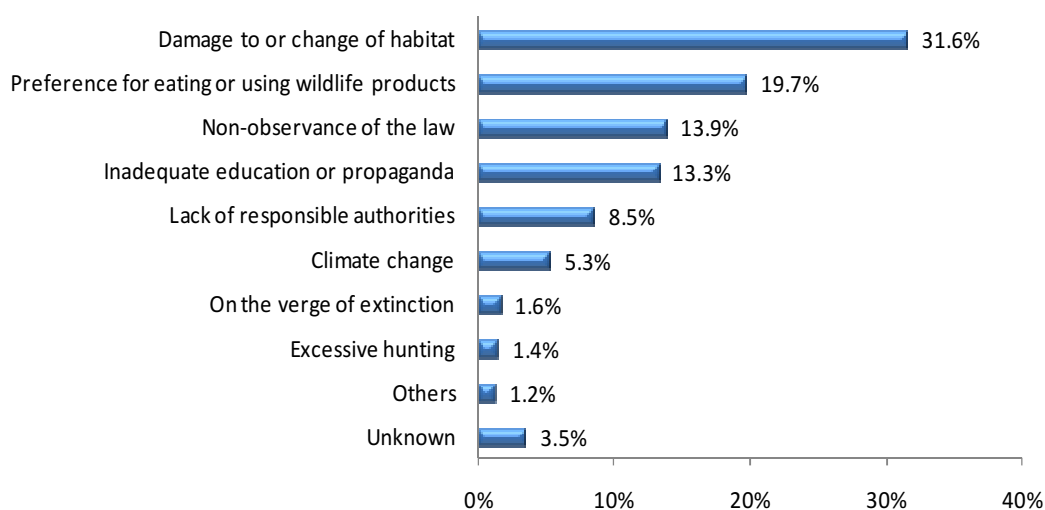


Fig. 15. Most critical issues confronted by tigers, bears, rhinoceroses, and turtles/tortoises as described by interviewees (Q23, n=1311)

Interestingly, a comparison of interviewees with purchase experience and future purchase intention (Fig. 16) showed that serious habitat damage (>43.8%) is still regarded as the most critical issue confronted by the abovementioned four categories of animals. The two groups of interviewees also recognize that inadequate education and propaganda is a major issue. However, this study has found that 80%–90% of the interviewees know about conservation and relevant

laws. Hence, the so-claimed “insufficient propaganda” shall not be considered as insufficient knowledge.

Based on one study of TRAFFIC in six Chinese cities about the consumption of wildlife, nearly 90% of the interviewees support the protection of wildlife, but only 25%–71% interviewees have not eaten wildlife within one year; the lowest was in Beijing and the highest in Guangzhou (Anno, 2010a). Although the study of TRAFFIC cannot be directly compared with this study, its result shows that the public has high awareness of conservation; however, it is possibly related with the quantity and quality of the propaganda work. High awareness of conservation does not represent that they have a correct and suitable attitude in using wildlife.

Among interviewees (n=42) who once purchased Chinese medicine made from tiger, bear, rhinoceros, turtle, and tortoise, 17.1% think that “preference for eating or using wildlife products” is a critical issue. Among interviewees who have future intention to purchase such medicines, some think that the critical issues confronting tigers, bears, rhinoceroses, and turtles/tortoises are non-observance of the law (15.6%) and lack of responsible authorities (12.5%). Based on the above analysis, few interviewees, particularly potential consumers in the future, are aware of the survival issue facing tigers, bears, rhinoceroses, and turtles/tortoises. However, they still purchase such products because, perhaps, they think that damage to habitat is the main cause of endangerment of such species, and their consumption habits do not cause or will not cause a critical influence on wildlife colonies. This shall be the emphasis of future education and propaganda.

At present, the conservation concept has been quite popular among the Taiwanese. Aside from deepening the conservation concept, making the public understand the influence of their behaviors on the environment is more important. Hence, the correct concept already known by the people may be converted to proper behavior and habits in daily life.

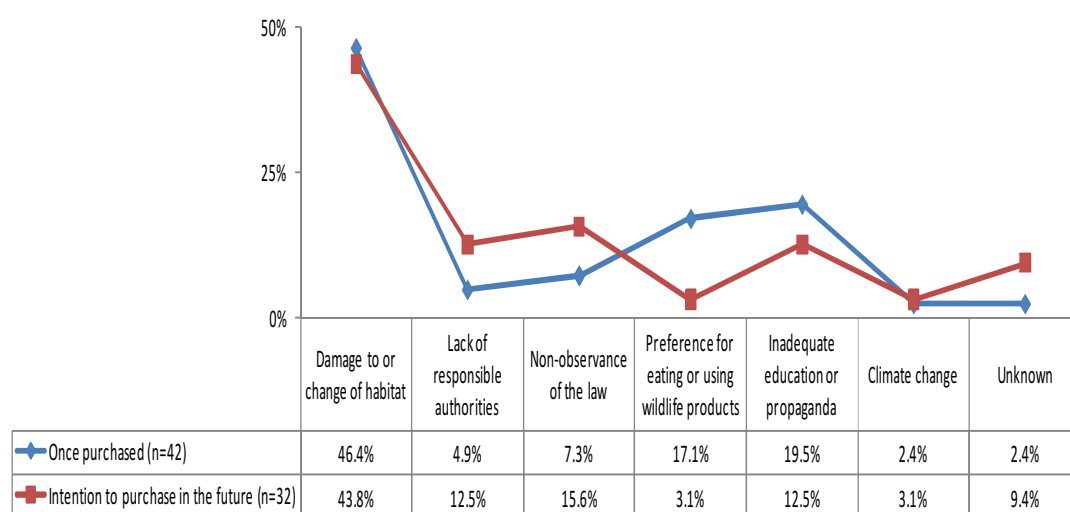


Fig. 16. Critical issues confronted by such animals as described by interviewees, who once purchased or intend to purchase Chinese medicine made from tiger, bear, rhinoceros, or

turtle/tortoise [Cross comparison of results of Q2 (n=42), Q5(n=32), and Q23)].

Channels of obtaining wildlife-related information

According to the survey, the Internet, TV, and newspaper are three major channels for interviewees to receive general information or wildlife-related information. A total of 80% of the interviewees depend on TV or the Internet to receive information (Fig. 17). Although Taiwan has an extremely high Internet penetration (70%, Anno, 2010b), TV is still the leading channel for the interviewees to obtain information, 35%–55% higher than the second channel, i.e., the Internet. This may be because TV is the most convenient tool for mass communication and can be used by many people at the same time. In contrast, the Internet is used by only one person at a given time, and users need to search information actively, not like TV that feeds information to users actively.

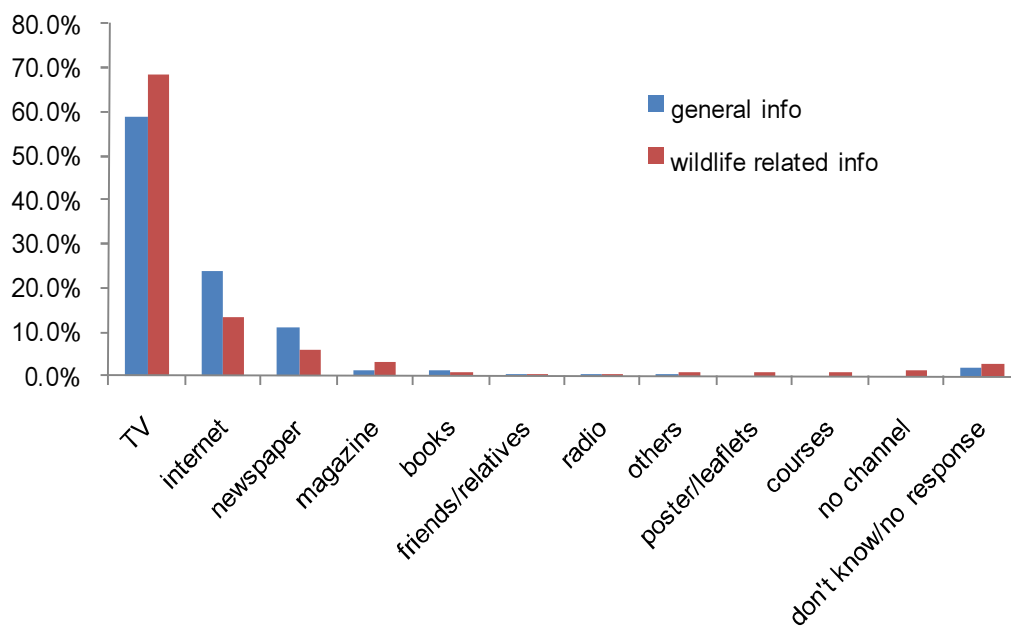


Fig. 17. Channels for receiving wildlife-related information (Q24, Q25, n=1311)

Further cross-comparison with the basic profile found that obtaining “general information” and “wildlife-related information” through the Internet has a significant disparity in age, education, and gender (Fig. 18). Those who are male, young, and have high educational attainment have a high percentage of obtaining information from the Internet.

Obtaining general information from TV has a significant disparity in gender, age, and educational attainment. More than 60% of the interviewees who are female, above 50 years old, and with less than a junior college education acquire general information through TV. Obtaining “wildlife-related information” from TV has a significant disparity in age and educational attainment; however, it has no significant disparity in gender. More than 60% of the interviewees from each age bracket obtain wildlife-related information from TV. As high as 73.7% of the interviewees within the 40–49 age bracket acquire information through TV. With regard to educational attainment, more than 70% of the interviewees with a degree from junior high school to junior college obtain wildlife-related information from TV (Fig. 18).

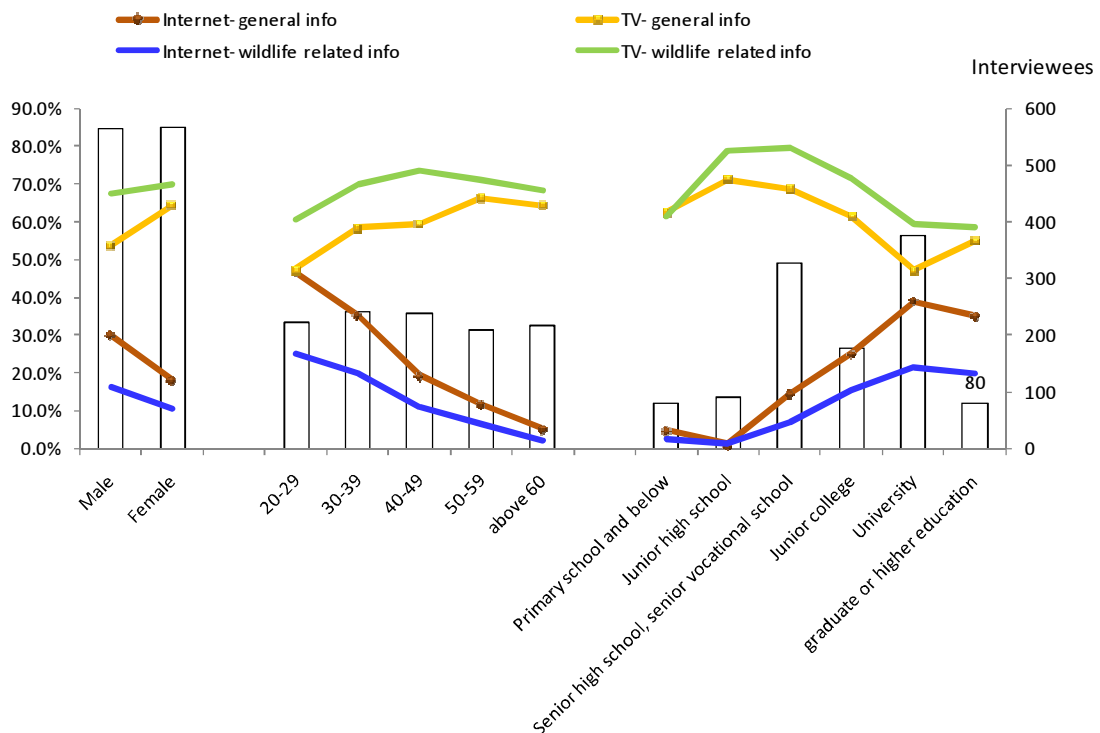


Fig. 18. Cross comparison of major channels of information and basic profiles such as gender, age, and educational attainment (Q24, Q25, n=1131)

By comparing the percentage of channels through which interviewees receive information, only interviewees in the 20–29 age bracket have no significant difference in obtaining information through TV or network; interviewees of other categories (gender, age, and education attainment) have TV as the major channel to receive information. This trend is even more apparent on the wildlife-related information. Hence, education and propaganda through TV are still unavoidable methods. Of course, the future approach shall be more vigorous, attractive, and profound, and shall link with behavior change, instead of only propagandizing government policy or laws. Moreover, the researcher shall also consider using TV as the media to increase the willingness and percentage of the public of all nationalities to obtain information through the Internet.

Conclusions and Recommendations

Most interviewees in Taiwan have not purchased (>96.3%) nor have the intention (>96.3%) to purchase Chinese medicines and curios made from tiger, bear, rhinoceros, and turtle/tortoise. As to awareness of protected animals, about 75% of interviewees know six among the eight protected animals (tiger, bear, rhinoceros, pangolin, sea turtle, leopard, saiga tatarica, and elephant). Only 2% are totally unaware of protected species. As to awareness of transaction statutes, those who are aware that the government has special control over wild tiger, bear, rhinoceros, and turtle/tortoise products are at least 20% higher than those who believe that the government has control over products of artificially bred animals. Among different species, interviewees have low awareness of

the special control over transactions involving turtles and tortoises.

Based on the integrated results, the percentage of interviewees who have no purchase experience or intention (>96.3%) is higher than that of interviewees who have correct awareness of legal control (Q22, 39–78%). More than 90% of interviewees (93.4%–97.3%) think that products from protected animals will influence the survival of the species or the ecology, and that it is important to protect these species (95.2%).

Among an extremely small number of interviewees who have purchase experience with Chinese medicines (n=42), about 1/3 of them make the purchase because they believe in the good treatment effects, whereas 1/4 of them make the purchase out of curiosity. Among an extremely small number of interviewees who consider the future purchase of Chinese medicines made from tiger, bear, rhinoceros, and turtle/tortoise, those who believe in the good treatment effects have the highest percentage (49.0%). Meanwhile, among interviewees who consider purchasing in the future, a high percentage agrees that using Chinese medicine made from protected animals has been the tradition (75.8%); some recognize that these medicines have certain medical values, not just a psychological function (46.9%).

The results show that a high percentage of interviewees think that serious damage to and change of habitat is the most critical issue confronted by tigers, bears, rhinoceroses, and turtles/tortoises. This is followed by other critical issues, including Taiwanese locals' preference for eating or using wildlife products; non-observance of the law; and inadequate education and propaganda.

Such results indicate that consumers' use of protected wild animals (tigers, bears, rhinoceroses, turtles, and tortoises) is not totally because of laws and regulations; the decision not to buy may be based on their interest to conserve the species or maintain the ecology. As to interviewees with future purchase intentions, "possible medical effect" is the biggest influencing factor. This indicates that effective education on conservation could influence majority of the public, enhance their self-management, reduce the intervention of state laws and law enforcement officials, and reduce the conflict between the public and the government. However, laws and their effective enforcement cannot be omitted. Aside from providing a code of conduct to the entire society, including various types of protected species and the means to regulate them, we could investigate unlawful acts that neglect long-term public benefits.

The Taiwanese habit of "receiving wildlife-related information" is consistent with that of general information. A majority of the public intends to passively receive TV information, and only a few interviewees search actively for information through the Internet. Hence, before the habit of active search of information is developed, lack of continuous propaganda or education by the government, conservation organizations, and schools will make the Taiwanese lag behind in their concept of conservation. Alternatively, they could experience a "blank" period, which makes the future link difficult.

Although a small number of people obtain information on wildlife conservation from the Internet, web pages about wildlife conservation and systematic posting of such information still have

extremely high values. In contrast with TV, the Internet is a cheaper public medium. The Internet also permanently stores information and provides limitless opportunities for inquiry. Apparently, the design, portal website, and the desire to improve the interests of the public and netizens in searching for information are quite important. Meanwhile, the value of TV as a medium of education and propaganda cannot be overlooked—it shall continue to provide key information to “change the consumption behavior or life habits to realize the target of sustainable survival of protected species.” TV may also be used to develop the public’s habit of actively searching for information. Moreover, the researcher could also consider using TV to develop the habit of actively obtaining wildlife and conservation-related information among the public.

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Appendix – Questionnaire

Survey on the Consumption of Endangered Animal Products

Questionnaire

Opening: Good day. We are the National Opinion Center. We are conducting a telephone interview on the consumption of wildlife products. Rest assured that this is only for academic research use. May we take a few minutes of your time to conduct our interview?
Thank you.

S1. According to the needs of the interview, may we ask if you are a household?

- (1) No—We are sorry but our interview is for ordinary households only. We hope to call you again next time. Thank you! (Interview ended.)
- (2) Yes (household or business) (Interview continued.)

S2. Are you over 20 years old? (If interviewee says “No”) We need to interview people over 20 years old. Would you please ask a family member over 20 years old to answer the phone? Thank you. (If there was a change of interviewee, the opening should be restated.) May we know your age please?

- (0) Below 19 (Interview ended.) (1) 20–29 (2) 30–39
- (3) 40–49 (4) 50–59 (5) above 60
- (99) Unknown/refused to answer (Interview ended.)

S3 Since your phone number was randomly selected by computer, would you please advise which county is your place of residence in Taiwan?

- | | | |
|---|--|--|
| <input type="checkbox"/> (1) Taipei County | <input type="checkbox"/> (2) Ilan County | <input type="checkbox"/> (3) Taoyuan County |
| <input type="checkbox"/> (4) Hsinchu County | <input type="checkbox"/> (5) Miaoli County | <input type="checkbox"/> (6) Taichung County |
| <input type="checkbox"/> (7) Changhua County | <input type="checkbox"/> (8) Nanton County | <input type="checkbox"/> (9) Yunlin County |
| <input type="checkbox"/> (10) Chiayi County | <input type="checkbox"/> (11) Tainan County | <input type="checkbox"/> (12) Kaohsiung County |
| <input type="checkbox"/> (13) Pingtung County | <input type="checkbox"/> (14) Taitung County | <input type="checkbox"/> (15) Hualien County |
| <input type="checkbox"/> (16) Penghu County | <input type="checkbox"/> (17) Keelung City | <input type="checkbox"/> (18) Hsinchu City |
| <input type="checkbox"/> (19) Taichung City | <input type="checkbox"/> (20) Chiayi City | <input type="checkbox"/> (21) Tainan City |
| <input type="checkbox"/> (22) Taipei City | <input type="checkbox"/> (23) Kaohsiung City | <input type="checkbox"/> (63) Kinmen County |
| <input type="checkbox"/> (64) Lienchiang County | | |
- (99) Unknown/refused to answer—Thank you very much for accepting our interview. We wish you a pleasant day. (Interview ended.)

S4 Are you engaged in any occupation related to traditional Chinese medicine (TCM)?

(1) Yes—We apologize, but our interview is not for workers in TCM industries. We hope to call you again next time. We wish you a pleasant day. (Interview ended.)

(2) No (Interview continued.)

S5 Are you a member of any conservation organization (such as The Society of Wilderness, Chinese Wild Bird Federation, Wild Bird Society of each country or city, etc.)?

(1) Yes—We apologize, but our interview is for people who do not participate in conservation organizations. We hope to call you again next time. We wish you a pleasant day. (Interview ended.)

(2) No (Interview continued.)

■Topic I. Current Situation of the Consumption of TCM Products of Endangered Animals (Tiger, Bear, Rhinoceros, and Turtle)■

PS: Q1–Q7 refer to TCM and Q8–Q12 refer to home decoration. Question alternation is required to be carried out in the interview.

Q1. Have your relatives and friends ever bought tiger-bone TCM (such as tiger-bone glue, tiger-bone wine, tiger-bone patches), bear gall TCM (such as bear gall powder, bear bile), rhinoceros horn (powder), turtle TCM (such as Guilu Erxian Glue, Guiling Jelly), etc.?

(1) Yes, they bought _____ (Please record the name of the medicine.)

(2) No

(99) Unknown/refused to answer

Q2. Have you ever bought tiger-bone TCM (such as tiger-bone glue, tiger-bone wine, tiger-bone patches), bear gall TCM (such as bear gall powder, bear bile), rhinoceros horn (powder), turtle TCM (such as Guilu Erxian Glue, Guiling Jelly), etc.?

(1) Yes, I bought _____ (Please record the name of the medicine.)

(2) No (go to Q4)

(99) Unknown/refused to answer (go to Q4)

Q3. What were your initial motivations in buying them? (This is a multiple-choice question. If the interviewee answers “Curing diseases, improving health, or sending presents,” please continue asking for details.)

(1) Recommended by TCM retailers

(2) Recommended by neighbors, relatives, and friends

(3) Thinks the treatment effect is probably good

(4) Curious and wants to try

(5) Recommended in radio ads

(6) Through online discussions

(65) Others (Please specify)

(99) Unknown/refused to answer

Q4. Do you think TCM containing tiger bone, bear gall, rhinoceros horn, or turtle has a certain “medicinal value?”

(1) Yes (2) No

(99) Unknown/refused to answer

Q5. May we know if you will consider buying tiger-bone TCM (such as tiger-bone glue, tiger-bone wine, tiger-bone patches), bear gall TCM (such as bear gall powder, bear bile), rhinoceros horn (powder), turtle TCM (such as Guilu Erxian Glue, Guiling Jelly), etc. in the future?

(1) Yes (Please give examples.) (2) No (go to Q7)

(99) Unknown/refused to answer (go to Q7)

Q6. What can possibly motivate you to consider buying the products in the future? (This is a multiple-choice question.)

(1) Recommended by TCM retailers

(2) Recommended by neighbors, relatives, and friends

(3) Thinks the treatment effect might be good

(4) Curious and wants to try

(5) Recommended in radio ads

(6) Recommended in online discussions

(7) Deems the treatment effect is good after use

(65) Others (Please specify)

(99) Unknown/refused to answer

Q7. Do you think there are other medicines which can replace TCM containing tiger bone, bear gall, rhinoceros horn, and turtle?

(1) Yes, there are those with full curative effect (Please give examples.)

(2) Yes, there are those with partial curative effect (Please give examples.)

(3) No

(99) Unknown/refused to answer

Q8. Have your relatives or friends ever bought home decoration products made of tiger, bear, or rhinoceros, such as tiger skin carpet, bear skin, rhinoceros horn home-decoration products, etc.?

(1) Yes, they bought _____

(Please record the names of the home decoration products.)

(2) No

(99) Unknown/refused to answer

Q9. Have you ever bought home-decoration products made of tiger-bone, bear, or rhinoceros, such as tiger skin carpet, bear skin, rhinoceros horn home-decoration products, etc.?

(1) Yes, I bought _____

(Please record the names of the home-decoration products.)

- (2) No (go to Q11)
- (99) Unknown/refuse to answer (go to Q11)

Q10. What were your initial motivations in buying tiger products, bear products, or rhinoceros horn home-decoration products? (This is a multiple-choice question.)

- (1) Preferred the style
- (2) Recommended by retailers
- (3) Rare collection
- (4) Feng shui
- (65) Others (Please specify)
- (99) Unknown/refused to answer

Q11. Will you consider buying products made of tiger, bear, or rhinoceros?

- (1) Yes (Please give examples.) (2) No (go to Q13)
- (99) Unknown/refused to answer (go to Q13)

Q12. What can possibly motivate you to consider buying the products in the future? (This is a multiple-choice question.)

- (1) Preferred the style
- (2) Recommended by retailers
- (3) Rare collection
- (4) Feng shui
- (65) Others (Please specify)
- (99) Unknown/refused to answer

■Topic II. Conservation Awareness■

Q13. Which do you think are protected animals? (This is a multiple-choice question. Options can be rotated.)

- (1) Tiger (2) Bear (3) Rhinoceros (4) Pangolin
- (5) Turtle (6) Leopard (7) Saiga Tatarica (8) Elephant
- (99) Unknown/refused to answer

Now, we would like to ask you the degree of your agreement with the following descriptions:
(Q14–21 for question rotation)

Q14. Do you think using tiger, bear, rhinoceros, or turtles to manufacture TCM or home-decoration products will influence the survival of these animals?

- (1) Very much (2) A little (3) Not much (4) Not at all
- (99) Unknown/refused to answer

Q15. Do you think using tiger, bear, rhinoceros, or turtles to make TCM or home-decoration products will influence the ecological balance of the Earth?

- (1) Very much (2) A little (3) Not much (4) Not at all
 (99) Unknown/refused to answer

Q16. Do you think Taiwan's international image will be negatively affected if it uses tiger, bear, rhinoceros, or turtles to make TCM or home-decoration products?

- (1) Very much (2) A little (3) Not much (4) Not at all
 (99) Unknown/refused to answer

Q17. Do you think it is a tradition of Chinese medicine to use TCM made of tiger, bear, rhinoceros, turtle, and other animals?

- (1) Totally agree (2) Agree (3) Disagree
 (4) Totally disagree (99) Unknown/refused to answer

Q18. Do you agree that although TCM made of tiger, bear, rhinoceros, or turtle is beneficial to the health of people, it should be used under supervision?

- (1) Totally agree (2) Agree (3) Disagree
 (4) Totally disagree (99) Unknown/refused to answer

Q19. Do you agree that although TCM made of tiger, bear, rhinoceros, or turtle is effective, we need to use other substitutes due to the extinction of wild animals?

- (1) Totally agree (2) Agree (3) Disagree
 (4) Totally disagree (99) Unknown/refused to answer

Q20. Do you agree that the pesticide effect from TCM made of tiger, bear, rhinoceros, or turtle is just a psychological effect?

- (1) Totally agree (2) Agree (3) Disagree
 (4) Totally disagree (99) Unknown/refused to answer

Q21. Do you think the protection of animals such as tiger, bear, rhinoceros, and turtle is important?

- (1) Very important (2) Important
 (3) Not very important (4) Extremely unimportant
 (99) Unknown/refused to answer

■ Topic III Awareness of Laws and Regulations ■

Q22-1. Which of these behaviors do you think are not particularly controlled in Taiwan? (Options 1–4 for rotation)

- (1) Buying or selling products made of wild tiger
 (2) Buying or selling products made of wild bear
 (3) Buying or selling products made of wild rhinoceros
 (4) Buying or selling products made of wild turtle
 (5) None of the above

(99) Unknown/refused to answer

Q22-2. Do you think the behaviors below are particularly controlled in Taiwan? (Options 1–4 for rotation)

- (1) Buying or selling products made of cultured turtle
- (2) Buying or selling products made of cultured tiger
- (3) Buying or selling products made of cultured bear
- (4) Buying or selling products made of cultured rhinoceros
- (5) None of the above
- (99) Unknown/refused to answer

Q23. What do you think are the major problems on animals such as tiger, bear, rhinoceros, and turtle? (Prompt one by one. Options are for rotation.)

- (1) Their habitats are seriously damaged.
- (2) There is a lack of organizations that take special responsibility for them.
- (3) People don't abide by the law
- (4) People like eating or using products made of wild animals.
- (5) Lack of work in education and advocacy
- (6) Climate change
- (65) Others _____ (Please continue to ask if there are more.)
- (99) Unknown/refused to answer

■Topic IV. Information Sources and Channels■

Q24. What is the major channel which lets you obtain any information? (Single choice, no prompt. Check the first item the interviewee answers.)

- (1) Relatives and friends
- (2) TV
- (3) Broadcasting
- (4) Newspaper
- (5) Magazine
- (6) Internet
- (65) Others _____ (Please continue asking if there are more.)
- (99) Unknown/refused to answer

Q25. What is the major channel which lets you obtain information related to wildlife? (Single choice, no prompt. Check the first item the interviewee answers.)

- (1) Relatives and friends
- (2) TV
- (3) Broadcasting
- (4) Newspaper
- (5) Magazines
- (6) Internet
- (7) Leaflets, posters, advertising boards
- (8) Public transportation ads and posters
- (65) Others _____ (Please continue ask if there are more.)
- (99) Unknown/refused to answer

■■Basic Information of the Interviewee■■

C2. May we know your educational background?

- (1) Primary school and below
- (2) Junior high school
- (3) Senior high school, higher vocational school
- (4) Junior college
- (5) University
- (6) Institute and above
- (99) Unknown/refused to answer

C3. What is your current occupation?

- (1) Elected representative, administrative director, business executive, or manager
- (2) Professional staff
- (3) Technical staff or assistor
- (4) Affairs personnel
- (5) Service worker or salesperson
- (6) Staff of agriculture, forestry, fishery, or animal husbandry
- (7) Skilled worker and relevant staff
- (8) Machinery operator and fitter
- (9) Manual labor and non-skilled worker
- (10) Student
- (11) Household management
- (12) Retired
- (13) Unemployed
- (65) Others (Please specify)____
- (99) Unknown/refused to answer

C4. What is your marital status?

- (1) Married
- (2) Unmarried
- (3) Divorced, widowed, or separated
- (99) Unknown/refused to answer

C5. May we know your average income per month in your family (including salary, rental income, investment earning, retirement pension, etc.)?

- (1) None
- (2) below 30,000
- (3) 30,000–50,000
- (4) 50,000–100,000
- (5) 100,000–150,000
- (6) 150,000–200,000
- (7) Over 200,000
- (99) Unknown/ refused to answer

C6. Which is your preferred medical treatment when you are ill? (If the interviewee cannot make a choice, please ask which of the following would merit the highest rate.)

(1) Western medicine

(2) Chinese medicine

(3) Folk medicine

(4) (99) Unknown/refused to answer

C1. Gender of the interviewee

(1) Male

(2) Female